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Features

- 3 Food Science - a New Program at Macdonald College
- 6 The Food Science Staff: Their Teaching and Research Expertise
- 9 Food Irradiation - Processing for the Future
- 12 Modified Atmosphere Packaging - Packaging for the Future
- 15 Profile: Dr. Jean David - Given a Choice "I Chose Macdonald"

Departments

- | | |
|------------------------------|-----------------------|
| 2 Guest Editorial | 29 Reunion '87 |
| 18 Mac International | 31 Beyond These Gates |
| 20 Issues in Human Nutrition | 32 Diploma Corner |
| 21 Notable Events | 34 QWI |
| 24 Fun Fact Fable Fiction | 38 Through the Years |
| 25 Seeking Solutions | 40 Newsmakers |
| 26 Campus Life | 44 Keeping in Touch |



As I write this cover blurb we are suffering through a hot, still, humid early July evening. I cannot, therefore, think of a more appropriate cover than the one so generously provided by the Dairy Nutrition Information Centre. It will certainly help cool down the dog days of August. Find a shady spot to go with the cool cover and read about the exciting new happenings in the Department of Food Science and Agricultural Chemistry here at Macdonald College. Those of us who are not directly involved in all the various aspects of food production may take our three squares - and snacks - too much for granted. We shop, we cook, we eat. The lead articles deal with what is happening beyond the farm gate and it's exciting - for students, researchers, food industries and, ultimately, for consumers. The lead articles should whet your appetite and have you asking for more!

Guest Editorial

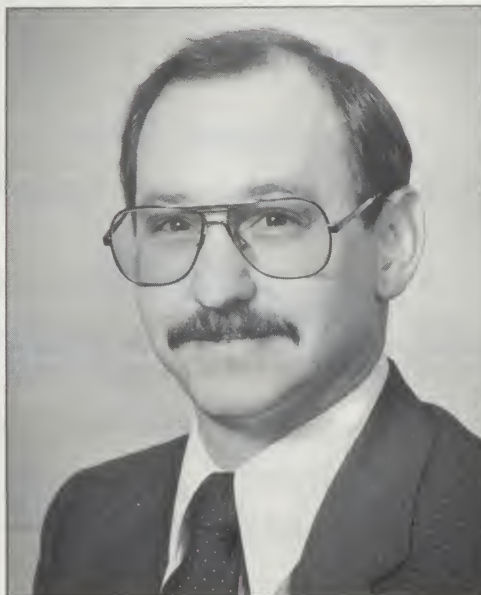
Moving Beyond the Farm Gate

by Dr. Fred R. van de Voort
Chairman, Department of Food Science and Agricultural Chemistry

As we all intuitively recognize, the world is changing around us continually; however, it is difficult as participants to appreciate these changes until we pause to reflect on them. The Faculty of Agriculture is no different than any other scientific discipline in having to respond to change and innovation, and graduates even from five years ago will be struck by the ongoing evolution taking place at Macdonald.

One of the major developments is the renewed recognition that the Faculty of Agriculture is capable of addressing the whole agri-food system rather than only the traditional production aspects. Although this concept has always been inherent in the faculty's thinking, it may not have always been in as clearly a structured manner as it now is. We can now easily visualize the Faculty of Agriculture's educational and research mandate to cover food production, processing, and preservation, right up to the consumption of the products by the consumer. This is a wide ranging but readily integrated mandate which Macdonald College is in a unique position to fulfil. In order to address this holistic mandate, steps have been taken to develop areas which deal with food beyond the "farm gate," but which are intimately tied to the production end. One of the areas slated for development is that of Food Science, which deals with the processing and preservation of food products and is the main focus of this issue of the Macdonald Journal.

Food Science is a growing discipline, brought about mainly as a response to the social changes taking place in North America and other parts of the developed world. Women are taking their place in the nation's economy and the traditional role as housewife and its attendant cooking and meal preparation duties are steadily evolving out of our social structure. The food industry, which originally provided only primary products for final preparation in the home, finds itself responding to market demands for more refined, sophisticated, and more fully prepared products. These demands for more fully processed and highly convenient foods



pose major scientific and technological challenges which cannot be met without highly trained scientists capable of understanding the complex chemistry/biochemistry of food systems, and the methods which can be applied to preserve them. The formation of a Department of Food Science and Agricultural Chemistry and its specially designed curriculum is a response to a growing need for food scientists by industry, government, and universities.

The delegation of food processing, preservation and preparation to industry is a major step in society which requires a high degree of confidence on the part of the consumer. To develop and maintain this confidence requires a sophisticated infrastructure which ensures the consistent manufacture of safe, nutritious, quality products being delivered to the consumer. This infrastructure includes scientists who are capable of heading quality control, product development, managing operations and processes, regulating the industry, developing analytical methodology and carrying out basic research. Macdonald College, through its new department, is now capable of meeting the need for food scientists head on through its specialized, accredited curriculum. As Montreal has the second

largest concentration of food manufacturing operations in Canada, industry is our prime target. Our strength lies in the bilingual nature of our students and a department located close to the employment market. There is also a very substantial regional and national government market for food scientists in the areas of inspection, regulatory affairs, and research. In addition, academia also requires PhD level food scientists for developing teaching programs and fundamental research endeavours.

The new Food Science program at Macdonald is designed to meet the needs of students and employers and thereby provide employment opportunities for our graduates. The department, which will have a staff of eight full time faculty members, will also have an extension mandate to interact and develop liaison with industry and government. As an applied field, food science integrates well into the faculty of agriculture, drawing on the basic sciences, agriculture, and specialty courses. The bold support of this program by Dean Buckland and the university administration has largely been responsible for its implementation, and we are looking forward to developing a reputation which will rival that of the more eminent food science departments in Canada. As the "new kid on the block" the Department of Food Science and Agricultural Chemistry at Macdonald will have many things to prove. I predict that the department, having now been given the staff and basic resources, will be a major force in the area of Food Science within the next five years and will make a vital contribution to the continuing development of Macdonald College.

Food Science - A New Program at Macdonald College

by Professor Fred R. van de Voort
Chairman, Department of Food Science and Agricultural Chemistry

It was not so long ago that the majority of the population was engaged in agricultural production in one form or another and in the preservation of their produce. With industrialization and urbanization, most of the population is now reliant on a small number of primary producers and processors for our food supply. In Canada we take food for granted, and few of us have experienced the food shortages and starvation common to much of the rest of the world. The production of food is in itself a major challenge. The processing and preservation of food to maintain it in an edible form is just as challenging. The key to the success of the North American food system is the integration of the primary producer with primary and secondary processors through the development of new and more efficient technologies.

Our society is moving ever further away from daily involvement in food production, preservation and food preparation and to a large extent this continuing trend is a consequence of social changes and re-arrangement of priorities. As mentioned in the Guest Editorial, women have been entering the work force in increasing numbers and family life and its traditional roles are being reformulated. Hence there is a demand for greater levels of convenience when it comes to food preparation and utilization. If this demand did not exist, many of the technologies used to manufacture today's food products would not exist.

How often do you hear or read a news item related to food? Additives are always topical, food irradiation has been receiving a lot of attention recently, while natural foods, processing, and pesticides in food are among other related topics which create "food controversies." Food should be at the forefront of our thoughts because, unlike most other manufactured goods, it is ingested and has a direct effect on our health and well being. Our society has slowly been delegating more and more of its processing, preservation, quality and safety to the food industry. Careful scrutiny of supermarket shelves today versus a critical recollection of the types of items on the same shelves even five years

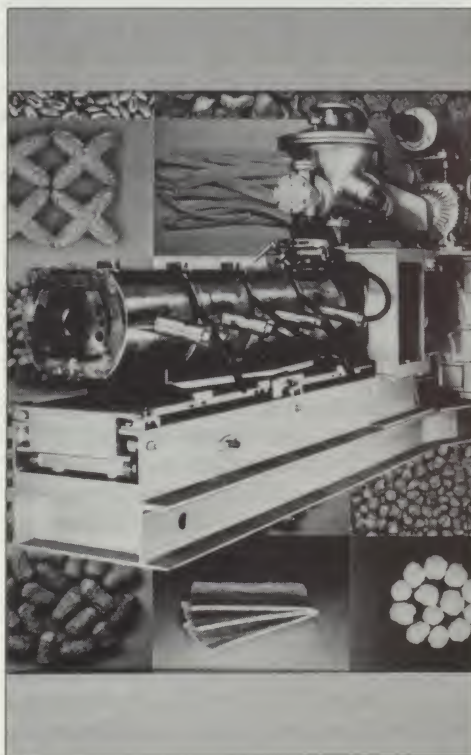
ago, will atune one to a quiet revolution taking place. Staple products like flour, sugar, and meat are still there; however, so are microwavable products, single portion meals, specialty sauces, fresh pasta, UHT milk in tetra-brick packages, boil in a pouch products, and exotic fruits just to name a few. The choices are at times overwhelming with new products appearing daily, most aimed at consumers who are not prepared to start meal preparation from scratch.

Industry, on the other hand, has taken on the large responsibility of safety and quality which was formerly left in the hands of the family unit. A mistake in processing or preparation (i.e., botulism or food poisoning) in the home could have serious consequences in its own right, but extrapolating such an error to a manufacturer producing 10,000 food units per day can be disastrous. Such responsibility cannot be taken lightly or met

on an *ad hoc* basis and requires highly trained scientific personnel who are cognizant of the complexity of the food system from the raw materials, through processing, to quality control, up to the packaged final product, i.e., the food scientist.

The evolution or revolution in food has to a large extent come about due to the application of scientific and engineering principles to post harvest food supply. Nicolas Appert, in response to Napoleon's call to preserve food for his armies, started the revolution by inventing canning or "thermal processing." Pasteur allowed us to recognize that microorganisms play a major role in food spoilage, and later refrigeration was recognized as a means of extending the shelf life of food products. Besides these major innovations, the modern beginnings of technological change occurred during the second world war, when once again means had to be devised to extend the shelf life of food products for long periods of time in order to get them to our soldiers overseas in a palatable form. Many service men still have memories of K (kennel) rations, a name which reflects the variable quality of these initial products. The key to improved food preservation during the war was the application of basic science and engineering to food systems and processes. After the war the larger companies further improved their technologies to manufacture ingredients for other sectors of the industry and produce items which made meal preparation more convenient for the women returning to their households. This was the thin edge of the wedge which has led to today's sophisticated food system and the quality goods that it delivers.

Science has always had a connection with food and, in fact, the discipline of chemistry started mainly because of attempts to understand the composition of food products. Faculties of agriculture have always had a food connection, not only at the primary production level, but also at the post harvest stage. The approach, however, was generally on a commodity basis. Typical university departments which worked in the food area were dairy science, meat science, horticultural



An extruder: a new method of food production.

ture, and pomology. As the secondary processing of food expanded, it also required the input of more basic scientists, including chemists, physicists, and microbiologists. The growing appreciation of the application of science to food systems was further developed through professional societies such as the Canadian Institute of Food Science and Technology (CIFST) and the Institute of Food Technologists (IFT) in the United States in the late 1950s. These organizations were instrumental in recognizing that there was a need for trained scientific personnel qualified to work in the food industry. This led to the concept of developing Food Science departments, which were principle oriented rather than commodity based. Today, six accredited food science departments exist in Canada, with the one at Macdonald College having recently joined their ranks. These departments provide industry, government, and academia with qualified people who are responsible for the infrastructure which allows efficient manufacturing, marketing, and regulation of finished food products to the Canadian consumer.

Macdonald College has always had its foot indirectly in the field of food science in the forms of the former School of Food Science and the Department of Agricultural Chemistry and Physics, but until now it did not amass the staff and resources necessary to put together an accredited program.

The development of a new department was to a large extent due to the implementation of recommendations made through a cyclical review process put into place for the evaluation of departments and programs within McGill university. The critical review process has led to a careful re-evaluation of the direction and opportunities of a number of McGill organizations in the light of today's needs. Although controversial, the review process has brought benefits, one of which has been the allocation of resources to allow the development of the Department of Food Science and Agricultural Chemistry with sufficient staff to give it the opportunity to succeed in both teaching and research.

When the green light for the development of a food science program was given, the staff, consisting at that time of Drs. Alli, Marshall, Smith, and the author, planned a curriculum based on the concept of developing a food science program which had a sound chemistry base. The strategy for the department's development was to make use of traditional strengths (chemistry) in conjunction with developing teaching and research in areas which other Canadian food science departments have not tackled. One advantage the new department has is a relatively clean academic slate to work with, providing a freedom to create a new program with few restrictions. In addition, the department was able to recruit four new staff, all of whom have PhDs in the discipline of Food Science, giving a full time complement of eight faculty members.

The Program

The food science program has been designed to combine the basic sciences, specifically chemistry, with specialty courses which are directly related to the discipline of food science. At this point, it would be useful to relate how the courses lead to the development of a qualified food scientist. The basic entrance requirements are standard for the faculty and require a DEC in Pure and Applied Sciences or Health Sciences. Much of the first year is spent in the basic sciences, specifically: Biochemistry, Analytical Chemistry, Organic Chemistry, Microbiology. A new course, Introduction to Food Science, is taught to orient students both in the department and those in other programs, providing both an introduction and an appreciation of the special role food science plays in the agri-food system. As food is basically a conglomeration of chemicals, generally coming from natural sources, chemistry plays an important role. The courses Food Chemistry I, II and III, delineate the major and minor chemical components of food systems in detail and how these components are affected by processing. Food Analysis is a related area which was developed, as students must understand how to analyse for fat,

protein, carbohydrates, additives etc., for quality control, cost control, or regulatory reasons. Most food categories are covered as a matter of course; however, special attention is given to fruits and vegetables, in Post Harvest Fruit and Vegetable Technology because these are still living systems. Food Processing is a core course which deals with the common preservation processes used by the food industry. Here students learn about spray drying, pasteurization, thermal processing, reverse osmosis, food irradiation, freeze drying, and many more operations. In the end, the product is only as good as the raw materials used, the sanitation employed, and the control maintained during the processing steps. Quality Assurance is a course designed to give the student the tools to set up quality control programs required in industry, much of which are statistically based and therefore they need Statistical Methods. Microbiology also plays a major role in food science, as microorganisms are, in many cases, both spoilage villains, which we need to control, and helpful allies in producing cheese, yogurt, beer, etc. All food scientists take a seminar course, which is designed to train them to speak in public on a selected subject in food science, and speakers from industry and government are also invited to present their experiences and views.

In the last year of the food science program, a selection of rather specific courses is offered in the areas of packaging, flavour chemistry, product development, hydrocolloids, and food biotechnology. These are the courses which separate our program from others given in Canada, in that these are topics in which industry is particularly interested in students having some expertise. Students also have electives which allow them to broaden their interests in areas such as economics, nutrition, basic agriculture, and the environment.

The Staff

No program can be successful without an adequate complement of staff to do the teaching and research, and Professor Alli dis-

cusses our good fortune in this area in the article that follows.

The Connections

In the development of any organization there is a requirement for a sound infrastructure and the ability to make interactive connections with other departments within the faculty. In terms of infrastructure, the department runs on the behalf of the faculty a pilot plant facility which houses basic processing equipment, such as spray driers, an extruder, and blanching and canning facilities. This area also includes freezer, refrigeration, and a small workshop. Sensory evaluation facilities are shared with the new School of Dietetics and Human Nutrition. In terms of research laboratories, well equipped analytical laboratories are part of the department and most modern equipment such as high pressure liquid chromatography, infrared spectrophotometers, scintillation counters etc., are available. Additional specialized equipment is accessed through cooperation with the Dairy Bureau of Canada and Muscle Biochemistry laboratories associated with the department. Food science as a discipline always has something in common with many of the other departments in the Faculty of Agriculture. Liaisons have been established with the Department of Agricultural Engineering in the area of microwave analytical methodologies, strawberry processing with the Department of Plant Science, insect control with the Department of Entomology, and milk analysis with the Department of Animal Science. With the addition of our new staff, this aspect of cooperation will increase. The same approach applies to the food industry and government which has been difficult to develop without the presence of an integrated food science program. The new department will actively be seeking to make industrial connections, in terms of helping out technically and scientifically on the one hand and seeking out their experience to help in our development and keeping up with industrial trends. These connections have already started through our Food Industry Leaders seminar series, where representatives of the Montreal food industry come to speak to our



Pilot plant facilities at Macdonald College.

staff and students. Other initiatives are in the planning stages, including a Montreal section meeting of the Canadian Institute of Food Science and Technology in March of 1988 at Macdonald College, and the department will play a major role in the National CIFST convention in 1991 to be held in Montreal. All of these developmental activities, research, training and placing of qualified undergraduate and post graduate students in industry and government will earn the department a place as a centre of food science expertise in the future.

The Future

We are confident that we have put together a sound program which will attract attention from industry, government and academia. It has already received recognition from the Canadian Council of Food Science Administrators, the CIFST, and IFT. Considering the professional staff associated with the new department and the wide range of expertise they bring to bear, it is not difficult to see why one can be genuinely confident about the

future for food science at Macdonald College. The staff, however, are only one side of the equation, and as important are the students and their aspirations. As professionals we have put together the program to educate and produce a student marketable for employment in industry, government, or academia. The students, in turn, must be convinced that the education they receive will equip them for their future careers as food scientists and that there is a market for the expertise they gain. McGill as an institution prides itself on academic excellence and cannot afford to make a half hearted attempt at building programs which do not have a place in today's world. The food science program at Macdonald College is aimed at fulfilling a need in today's technological society and the students who enroll in the program this fall and in successive years will receive a quality education. The department is ready to go into top gear this fall with its new program, develop a research strategy based on the expertise of its staff, and make a significant contribution to Macdonald College and the Canadian food industry.

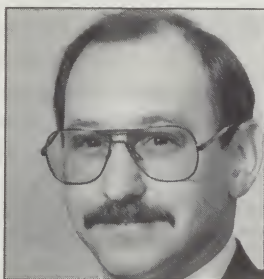
The Food Science Staff: Their Teaching and Research Expertise

by Professor Inteaz Alli

Department of Food Science and Agricultural Chemistry

The department has inherited a strong research tradition from the former Department of Agricultural Chemistry (later the Department of Agricultural Chemistry and Physics). The reputation of the research activities in the field of Agricultural Chemistry by the late Professor R.H. Common, G.O. Hennenberry, and retired Professors P.A. Anastasiadis and B.E. Baker provide a challenge to the young staff of the newly formed department. With (a) the change in orientation, both in the teaching program and in research and (b) the academic background and expertise of new staff, emphasis in research activities has now shifted from Agricultural Chemistry to Food Science. The new department has the critical mass to pursue a research thrust in Food Science, particularly in the areas of Food Chemistry, Food Analysis, Food Biochemistry, Food Packaging, and Food Processing. Several staff members in the department have already established research programs in these areas.

Professor Fred R. van de Voort, Chairman of the Department, graduated from the University of British Columbia and came to Macdonald College via the University of Saskatchewan and the University of Guelph. Dr. van de Voort has already researched several areas in Food Science. One of his primary interests has been the analysis of foods by transmission infrared spectroscopy. This technique, which was pioneered first at the University of Guelph and later at Macdonald College, was applied initially to the rapid analysis of milk for fat, protein, and lactose. Fred van de Voort has been involved in certifying infrared instrumentation for approval by the Association of Official Analytical Chemists. This work has also investigated fundamental aspects of the technology for expanding its application to food systems other than milk. By use of a sophisticated infrared spectrophotometer uniquely capable of handling aqueous systems, the wavelengths used for analysis are



developed; this research has led to the use of infrared for analysis for nitrogen and moisture determination in meat and fish.

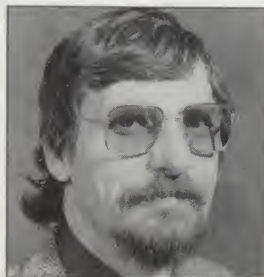
Another area of Professor van de Voort's research is in extrusion cooking. Macdonald College now has one of the few extrusion research facilities in Canada. Extrusion is a special process which can be used to make expanded or textured food products; this process is an increasingly important technology and its uses are constantly being expanded. One research project underway, is the manufacture of sodium caseinate from skim milk powder which is a surplus commodity in Canada. As a value added product and a more versatile commodity than casein, the efficient production of sodium caseinate may reduce Canada's milk subsidy.

More recently, Professor van de Voort has become interested in the use of microwave energy for analytical purposes. Work has recently been completed on a high temperature probe which can be used to study processes in a microwave environment.

Professor van de Voort's teaching responsibilities include the introductory food science course, a food chemistry course, and seminars.

Professor James P. Smith, a graduate from the University of Alberta came to Macdonald in 1984 via the Australia Meat and Livestock Corporation. His primary research

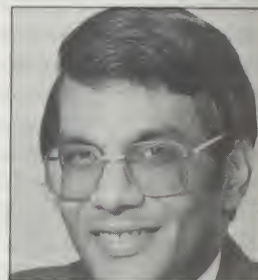
interest is in food packaging. In particular, he is interested in the use of modified atmosphere packaging (MAP) for shelf-life extension of fresh and processed foods. Professor Smith's involvement in MAP in the Canadian baking industry has resulted in the development of a commercially successful gas packaging technique for shelf-life extension of crumpets and waffles without refrigeration. Current research involves col-



laboration with Canadian, Japanese, and Australian bakery industries on novel methods of atmosphere modification for shelf-life extension of bakery products. Dr. Smith's other research interests include: a) studies on physical, chemical, and microbiological changes of gas-packaged meat and irradiation studies on packaged meat, (b) application of the catalasemeter as a rapid quality control tool for the meat, dairy and canning industries and c) application of process optimization techniques in shelf-life extension studies of food.

Professor Smith is responsible for a food chemistry course and a packaging course.

The author, Professor Inteaz Alli, a McGill graduate from the former Agricultural Chemistry and Physics Department at Macdonald College, joined the new department in a full-time capacity when it was formed in 1985. Dr. Alli's primary research interest is in the area of plant proteins and their potential for utilization in foods. Over the past few years, this research has been aimed at the isolation of acid soluble, crystalline proteins from dried beans, eg., kidney beans. The fact that these proteins are soluble in acid solutions suggests that they are potentially suitable for protein supplementation of acid foods and acid beverages, eg., fruit juices, carbonated drinks, etc. The proteins are being investigated for other functional properties, eg. gelation, foaming and for their biochemical and nutritional properties. The fact that some of the proteins exhibit crystalline microstructures provides a basis for investigations on unique gelling properties with the objective of imparting desirable texture to certain protein-based processed foods.



The author has also investigated the potential for preparing protein concentrates from brewer's spent grain (BSG). BSG is the

Food Irradiation - Processing for the Future

principal by-product from the brewing industry. A procedure has now been developed in the laboratory at Macdonald College by Dr. Alli's group to prepare a protein concentrate from BSG. A patent application has been filed by Molson Breweries of Canada Limited for protection of the rights to this procedure. Further research is in progress on process optimization, on evaluation of the process at the pilot scale level and on the nutritional and functional properties of the proteins with a view of their use in processed foods.

The author's teaching responsibilities include food analysis and quality control.

Professor Bill Marshall, a graduate from McMaster University came to Macdonald College from Agriculture Canada. Dr. Marshall's primary research



interest is in the field of environmental chemistry and toxicology. This research has led to methodology for quantitation of trace levels of organo-lead as well as other toxic metallic compounds in environmental and biological samples. Dr. Marshall is also involved in research on the analysis and toxicity of pesticides, fungicides, and mycotoxins. This research represents the Agricultural Chemistry component which previously was the major thrust of the forerunner to the Department of Food Science and Agricultural Chemistry.

Professor Marshall's teaching duties involve mainly basic and advanced analytical chemistry.

The four staff members whose research activities are described above represent the core of the department at the time of its re-organization in 1985. In June of this year the department engaged four new faculty members whose backgrounds are in the Food Science area. This significantly advances the department's ability to further its research

thrust in Food Science. A brief summary of the research interests of the new staff is provided.

Professor Selim Kermasha, a graduate from the University of Nancy, France, was a research associate in the department for the past three years. Professor



Kermasha has worked in the field of enzymology and has investigated the role of lipases and other enzymes as well as the effects of thermal treatments on the formation of carbonyl compounds responsible for flavour and off-flavour in green and dried beans. Dr. Kermasha's research plans include the investigation of the roles of these enzymes in the development of flavour and off-flavour compounds in other seeds, eg., rapeseed. His other research plans are directed at the use of enzymatic techniques to improve the processing parameters as well as the quality of processed foods. From a teaching viewpoint, Professor Kermasha will address product development and food hydrocolloids.

Professor Varoujan Yaylayan, graduated from the Food Science Department of the University of Alberta. For his doctoral research he inves-



tigated the mechanisms of the reactions by which flavour compounds are produced via the Maillard reaction. Dr. Yaylayan plans to continue research on these reactions in food systems. By controlling the relative concentration of certain reactants, eg., amino acids or the addition of certain products to a food system, it is hoped that production of specific flavour compounds can be achieved. With regards to these reactions in the "browning" colour of foods, it is hoped that by identifica-

tion of the reactive intermediates of the Maillard reaction, these intermediates could be removed from particular food systems in which they produce undesirable "browning" during heat treatment of the foods. Professor Yaylayan will be responsible for courses in organic chemistry, physical chemistry, and flavour chemistry.

Professor Ben Simpson completed his graduate studies at Memorial University. He joined the department after spending a year at the University of Florida at Gainesville. Dr. Simpson plans to establish a research program in the fish processing area. In particular, his interests include, (a) the use of marine organisms as sources of proteolytic enzymes; these enzymes can then be used to impart or modify structural and/or functional properties of processed foods, (b) the development of new fish-based products and methods of processing and preservation, and (c) utilization of by-products from the seafood processing industry. Professor Simpson will be teaching biochemistry and a food chemistry course.



Professor Swamy Ramaswamy graduated from the University of British Columbia and spent a year in the food processing industry in B.C. His primary research interests are in the fields of thermal processing and freezing and dehydration processing of foods and food products. His teaching responsibilities will be in these areas. He also has expertise in computer modelling in the engineering and textural aspects of foods in relation to thermal processing. Professor Ramaswamy plans to continue research in the food processing area and particularly address the effects of thermal,



freezing and dehydration processes on the enzymatic changes and loss of nutritive value of processed foods. He will also be investigating various mechanisms for packaging of foods, eg. aseptic packaging, modified atmosphere packaging and thin profile packaging.

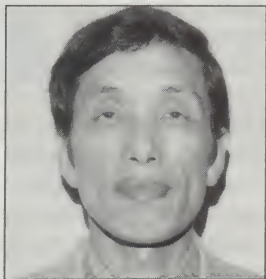
In addition to the research activities of the eight full-time faculty members, there are other research activities by associate members of the department. Dr.



Vic Amer, Senior Vice President, Science and Technology, of the Dairy Bureau of Canada, has established excellent laboratory facilities for research and development in the dairy field; this laboratory is affiliated with the department. The research activities here are directed at both technological and nutritional aspects of milk and dairy products.

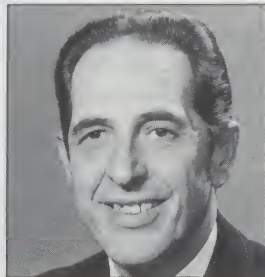
Professor D.J. Ecobichon, a member of the Department of Pharmacology and Therapeutics on the downtown campus, plays an important role in teaching a very popular toxicology course in the department and carries out joint research with Professor Marshall in the toxicology area.

Two Agriculture Canada researchers are also affiliated with the department. Dr. Byong Lee, head of the Food Biotechnology section at Agriculture Canada's Food



Research Centre at St-Hyacinthe has recently set up a laboratory in the field of food biotechnology and industrial microbiology, par-

ticularly in relation to enzymology, fermented dairy products and genetic engineering for improving microorganisms for food fermentation and for enhanced production of enzymes and other ingredients. The other Agriculture Canada researcher, Dr. C.G. Zarkadas, has been affiliated with the department for the past five years. His research interests are



primarily in the field of muscle biochemistry

and methodology for isolation and characterization of the constituents of meat and muscle proteins.

With its present full-time staff and the affiliated research scientists, as well as an acknowledged common research thrust from within the unit, the department now has the potential to leap to the forefront of scientific research in Food Science.

Congratulations Macdonald College

Department of Food Science and
Agricultural Chemistry

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Food Irradiation - Processing for the Future

by Professors Fred van de Voort and Jim Smith

Department of Food Science
and Agricultural Chemistry

One of the greatest challenges facing the world today is the availability of sufficient food supplies to meet the needs of a rapidly growing population. The world population in 1980 was estimated at 4.5 billion and this is expected to grow to over 6.1 billion by the year 2000. The majority of this growth in population will occur in countries where chronic food shortages and malnutrition already exist. The world wide "war against hunger" is constantly being attacked on two fronts; the first being the improvement in agricultural and farming techniques; the second is the preservation of food wholesomeness as it moves from the primary producer to the consumer. Food scientists have been successful in developing an "arsenal of weapons" for preserving foods such as drying, canning, freezing, and pasteurization. The development of radiation processing technology has given mankind another tool for increasing the world's total food supplies.

Canada has always been a world leader in the development of irradiation technology. Atomic Energy Canada Limited (AECL), through the Radio Chemical Company has been carrying out research into the application, usefulness and safety of this technology since 1957. Industrial irradiators were first established in 1960 and today some 74 AECL units are in operation worldwide. In May 1987 a bulk research food irradiator was put into operation at the Centre de recherches alimentaires de Sainte-Hyacinthe (CRASH). In June a second facility was opened under joint supervision of AECL and Cresala of the Armand Frappier Institute. Hence, major moves have been made in Quebec to provide the infrastructure to continue research and development and commercial assessment of food irradiation as a process. A joint project between Dr. Jim Smith of the Department of Food Science and Agricultural Chemistry and Dr. Byong Lee of CRASH and an Auxiliary Professor in our department, is currently underway. This project, funded by CRSAQ, will examine the physical, chemical, and microbiological changes in irradiated packaged fresh and cured meat products. This basic research will provide an important

data base in terms of packaging variables influencing the shelf life of these products.

A typical bulk food irradiation facility, shown in Figure 1, consists of (i) the radiation source, (ii) a cell housing the radiation source, and (iii) a conveyer system to move foods in and out of the cell. At the heart of industrial radiation is the gamma radiation emitting isotope Cobalt 60 produced in Canada by nuclear activation of Cobalt 59 in Candu nuclear reactors. Cobalt 60 is unstable and decays by emitting one electron (beta radiation) and two high energy photons (gamma radiation). Only the gamma radiation is of consequence since it is capable of penetrating matter extensively. What makes gamma radiation so attractive is the fact that the gamma rays emitted do not have sufficient energy to disturb the atomic nuclei of the material being irradiated. The major mechanism of action is the random ejection on an electron from the orbit of the molecules being bombarded causing "ionization," hence gamma radiation is commonly termed "ionizing radiation." The key manner by which ionizing radiation operates is by breaking chemical bonds in the absorber. In living organisms this results in changes in

DNA, deoxyribonucleic acid, the major component of genes. Inactivation of DNA causes death of component cells.

The amount of radiation applied to food to bring about a desired effect in the food is referred to as the "dose." Common terms used to express the dose are the Rad, equal to the absorption of 100 ergs of energy per gram of absorber and the Gray (Gy) equal to the absorption of 1 Joule per kilogram. One Gy is equal to 100 Rads. The dose employed in food preservation depends on a number of factors such as nature of food being preserved, type and numbers of spoilage microorganisms, and expected shelf life. Examples of dose range for various kinds of effects in irradiated food are shown in Table 1. Experimental work has shown that very low doses, 0.1 - 0.2 Gy will inhibit sprouting in onions and potatoes and delay ripening in many fruits and vegetables. Radiation doses of 0.5 - 1 kGy can be used to inactivate insect pests regardless of stage of development (egg, pupa, larva or adult) and regardless of location. In mangoes, a weevil exists inside the fruit and cannot be reached by chemical pesticides. Sterilization of male insects through radiation is also proving to be an effective

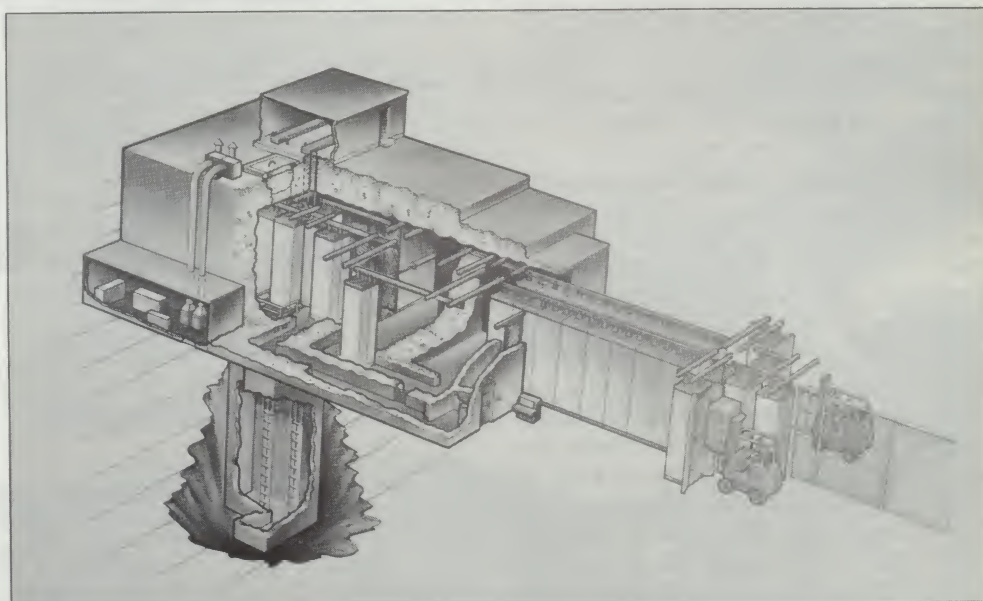


Figure 1. An industrial irradiator

control technique and results in a reduction in the amount of poisonous insecticides used each year. Radiation doses up to 10 kGy cause destruction of pathogens such as *Salmonella* in meat and poultry and *Trichinella spiralis* in pork. The shelf life and keeping quality of such irradiated products can be extended from three days to four to five weeks under refrigerated storage conditions. Higher doses up to 40 kGy can be used to sterilize meat and poultry for long storage without refrigeration. Similar doses are used to sterilize diets of patients with reduced immuno-response and, therefore, especially vulnerable to microbial infection.

In addition to destruction of pathogens and shelf life extension of food, irradiation can also bring about improved chemical changes in food. Bread made from irradiated wheat has greater loaf volume while the cooking time of many irradiated dried vegetables can be reduced. With soybeans, radiation can be used in conjunction with controlled germination to reduce the oligosaccharide content of beans, the major cause of flatulence.

Countries in which irradiation has been approved for use and products irradiated are shown in Table 2. Other countries seeking approval to use or extend its use of the process include Italy, France, Sweden, Denmark, Federal Republic of Germany, United States, Canada, and the United Kingdom.

The advantages of irradiation as a preservation technique are shown in Table 3. A major advantage of the process is extended product shelf life and destruction of harmful pathogens and insect pests. Another important advantage of irradiation is that it is a "cold sterilization" process. A dose of about 50 kGy, the largest dose likely to be used in food irradiation, equals about 12 gram calories. Unlike thermal processing, irradiation produces little temperature change in food resulting in minimal changes in texture or flavor of food being processed. It is evident from Table 4 that irradiation is also much less energy intensive and therefore a more economical method of food preservation compared to freezing and drying. A further

Table 1
Dose range for various kinds of effects in food irradiation

Effect	Dose (Gy)
Destruction of bacterial spores	30,000 - 50,000
Destruction of vegetative bacteria	1,000 - 10,000
Destruction of food-borne pathogens	2,000 - 8,000
Insect disinfection	150 - 500
Inhibition of maturation of fruits and vegetables	50 - 500
Chemical Change	Variable

Table 2
Countries Using Food Irradiation

Country	Products Irradiated
Belgium & The Netherlands	Packaging materials Animal feeds Spices Dried vegetables Frog's legs Shrimps
Canada	Potatoes Wheat Flour Spices
Hungary	Onions Starches Spices
Japan	Potatoes
Norway	Spices
South Africa	Fruits and vegetable
UK	Spices Hospital meals
USA	Spices Hospital meals Space Shuttle meals
USSR	Grain

attraction of irradiation is its flexibility; it may be used to preserve a wide range of foods of varying size such as sandwiches, gourmet meals, roasts, sacks of flour, pallet loads of fruits and vegetables. In addition it can be used with packaged products, thereby eliminating the risk of post processing contamination. A major disadvantage limiting further commercialization of the process is consumer acceptance of irradiation (Table 5). Ever since Hiroshima and the destructive unleashing of nuclear energy, the public has had cause to fear nuclear energy as superpowers postured with their bombs. Recent disasters such as Three Mile Island and Chernobyl have done little to alleviate the public's perception and fear of nuclear energy. However, after 30 years of research and overwhelming evidence on the safety of the process, the barriers to commercial development of food irradiation are slowly, but methodically, being overcome. A further concern is that *Clostridium botulinum* spores may survive the "sterilization" process. In the absence of competitors, *C. botulinum* could grow and produce sufficient toxin to cause a serious outbreak of botulism.

In conclusion, gamma radiation processing is an energy efficient, safe process which com-

Table 3
Advantages of Irradiation

Extended shelf life
Destruction of food poisoning bacteria
Eliminates need for preservatives, pesticides
Low energy costs
Limited sensory or textural changes in food
Used with packaged products
Flexibility

Table 4
Typical Energy Values Required for Food Processing

Process	Energy Value (kJ/kg)
Radiation : "pasteurization" (2.5 kGy)	21
Radiation : "sterilization" (30 kGy)	157
Heat : "sterilization"	918
Blast freezing (+4 to -23°C)	7,552
Frozen storage (-25°C/3.5 weeks)	5,149
Chill storage (0°C/10 days)	396

Table 5
Disadvantages of Food Irradiation

Consumer concerns
Potential growth of organisms of public health significance
Slight flavor, textural changes in certain foods

compares favourably with conventional food preservation methods. The equipment used to expose produce to the gamma source is simple to operate and easy to maintain. In the Presidential Address by Dr. Glenn T. Seaborg, given at the opening of the Fourth International Conference on the Peaceful Uses of Atomic Energy in Geneva, 1971, he predicted that one of the major uses of atomic energy "within a decade or two," would be the widespread application of food irradiation. These expectations have certainly not been fulfilled in the first decade, but they may still come true before the second decade is over. Canada, with its expertise in irradiation technology, will play a pivotal role in efforts to make food more available at reasonable cost to meet the needs of the world's growing population.

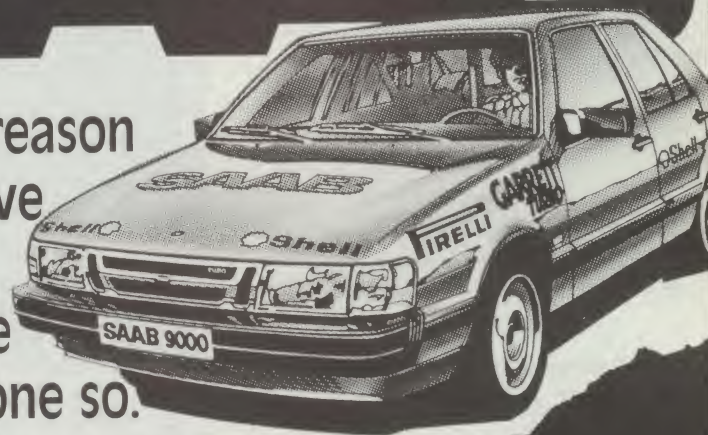
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Modified Atmosphere Packaging - Packaging for the Future

by Professor Jim Smith

Department of Food Science
and Agricultural Chemistry

The shelf life of many perishable foods such as meat, eggs, fish, poultry, fruits, vegetables, and baked products is limited in the presence of atmospheric oxygen by three important factors; the chemical effect of atmospheric oxygen, the growth of aerobic spoilage organisms, and attack by insect pests. All of these factors, alone or in conjunction with one another, result in changes in colour, flavour, odour, and overall deterioration in food quality (Figure 1). Several methods can be used by the food processor to slow down or inhibit these deteriorative changes and include chilled storage, freezing, heat processing, drying, and use of chemical additives and preservatives. Recently there has been a renewal of interest in the use of modified atmospheres for shelf life extension of foodstuffs.

The normal composition of air is 20 percent oxygen (O_2), 79 percent nitrogen (N_2) and 1 percent carbon dioxide (CO_2). A modified atmosphere, as the name implies, is one in which the normal composition of air is changed or "modified." This modification usually results in a reduction of the O_2 content of air while increasing the level of CO_2 and N_2 . Major terms used to describe this modification are shown in Table 1.

TABLE 1

Nomenclature

Both C.A. and M.A. mean that the atmosphere around the product differs for air

C.A. = "Controlled Atmosphere"

Continuous throughout storage

(C.A. is more precise than M.A.)

M.A. = "Modified Atmosphere"

Adjusted only at onset of storage

Both involve manipulation of CO_2 , O_2 and N_2 levels and sometimes CO, ethylene, propylene, and acetylene.

A controlled atmosphere (C.A.) is the process whereby the gaseous environment is modified to a desired level and controlled at this level, within strict limits, throughout storage and is usually applied to bulk storage of products. A modified atmosphere (M.A.) applies to food packaged in small convenient retail units in which the gaseous atmosphere is modified or changed at the point of packing. However, unlike a C.A., the gaseous atmosphere in M.A. packaged products changes continuously throughout the storage period. Thus, while both C.A. and M.A. mean that the gaseous atmosphere around the product differs from air, C.A. has more precise gas compositional control than M.A.

The use of modified atmospheres for shelf life extension of food is not a new concept in food preservation. In the 19th century scientists discovered that the elevation of CO_2 and reduction of O_2 retards catabolic reactions in respiring foods and slows growth of aerobic spoilage microorganisms. Basic research on the use of modified atmospheres for shelf life extension of fruit, vegetables, fish, and meat was done during the 1920-30s. By 1938, 26

percent of chilled carcass beef shipped from Australia and 60 percent of that shipped from New Zealand were being shipped under a CO_2 enriched atmosphere. Successful application of C.A. storage is most extensive for apples which can be "put to sleep" and kept "fresh" for up to seven months using the correct gas mixture in conjunction with temperature and humidity control. What is new and exciting is the growth in modified atmosphere packaging (MAP) of food in small convenient retail or distribution units. This growth has resulted from advances in packaging technology and equipment and the food industry's need for less energy intensive forms of food preservation compared to freezing, drying, and thermal processing.

How is the gas atmosphere modified in packaged foods? As shown in Table 2 several methods can be used to modify the gas atmosphere in the packaged product with vacuum packaging (VP) and gas packaging (GP) being the most common methods of atmosphere modification. Vacuum packaging is most commonly used by the meat industry to extend shelf life and keeping quality of pri-



Modified atmosphere packaging with refrigerated storage can be used to extend product shelf life.

mal cuts. Under conditions of a good vacuum, headspace O_2 is reduced to <1 percent while CO_2 , withdrawn from respiring intracellular tissues, increases to 10-20 percent within the package headspace. These conditions, i.e., low O_2 and elevated CO_2 levels help extend the shelf life of meat by inhibiting growth of normal aerobic meat spoilage microorganisms. Under refrigerated storage conditions, VP beef can be kept fresh for 12 weeks or more. The main disadvantage of VP is that the absence of O_2 results in a change of meat colour from red to brown. Since consumers associate colour with freshness, VP of meat is not used at the retail level. However, it is extensively used for wholesale distribution of primal cuts where perception of colour is of less importance since the meat undergoes further processing, e.g., curing, prior to sale. A further disadvantage of VP is that it cannot be used on soft products such as pizza or pasta or baked products.

Gas packaging is simply the fortuitous application of VP. The technique involves evacuation followed by back flushing with an appropriate gas mix of CO_2 , N_2 , O_2 and sometimes CO , the most effective being CO_2 with or without other gases. Examples of food products currently gas packaged and types of gas mix used for each product are shown in Table 3. The gas mix employed depends on a number of interrelated factors such as nature of product, types of microbial flora associated with product, packaging film permeability characteristics, and desired product shelf life. For example, with meat, O_2 is necessary for the bright red colour or "bloom" which is associated with good quality meat. However, O_2 promotes microbial growth. Carbon dioxide is a bacteriostatic agent, i.e., it inhibits microbial growth, but it will discolour fresh meat. The problem of balancing these two separate effects can be overcome by using a gas mixture incorporating CO_2 , O_2 , and N_2 . The N_2 is needed to prevent the packaging film collapsing around the product as CO_2 dissolves in the meat. When fresh beef and pork are packed in an atmosphere of 70 percent O_2 , 20 percent CO_2 , and 10 percent N_2 and kept under refrigerated storage conditions, a shelf life of 10-12 days

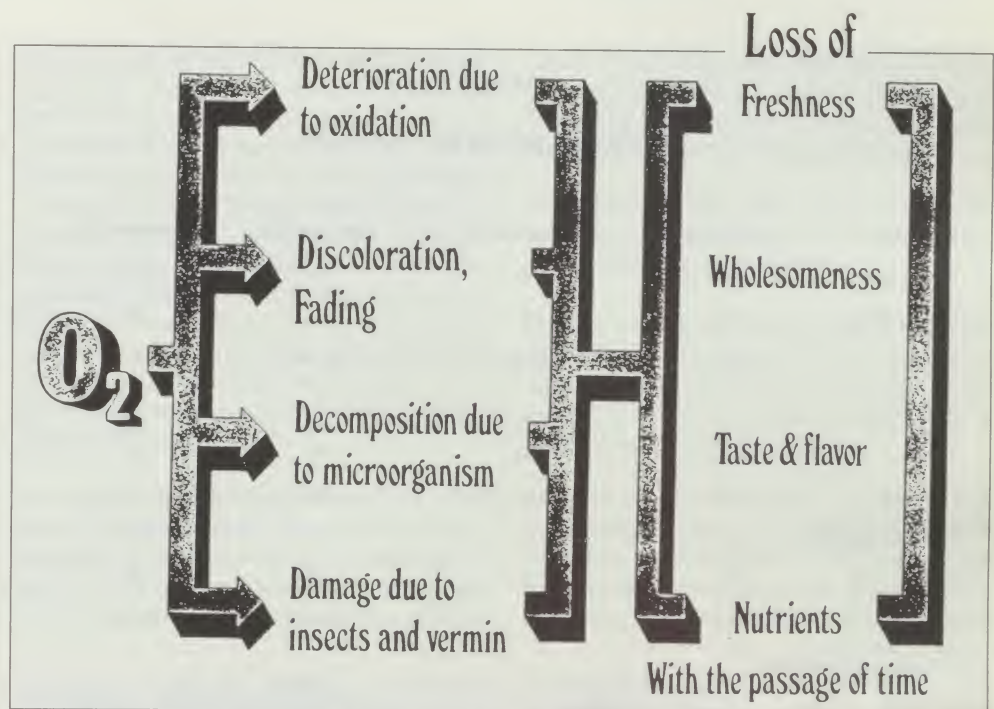


Figure 1. Oxygen is the cause of deterioration of foods.

can be expected providing the meat was of good microbial condition at the time of packaging. For cured meat products, where O_2 is not necessary, and even detrimental to product colour, it is necessary to package with an O_2 free mixture of CO_2 ; N_2 or 100 percent of either gas. With fish, the gas mix employed depends on the fat content, which varies from 1 percent to a maximum of 20 percent with mackerel. Fish low in fat can be packaged in 60 percent CO_2 ; 40 percent O_2 while high fat fish, such as mackerel and herring, need to be packaged in an oxygen free environment to prevent rancidity problems. For most muscle foods, gas packaging, to be effective, must be used in conjunction with refrigerated storage. Recently, however, gas packaging has been successfully applied to extend the mould free shelf life of baked products stored at ambient temperature. Using a CO_2 ; N_2 (60:40) gas mix, the mould free shelf life of baked products can be extended for upwards of one to three months at room temperature. In addition to these products gas packaging is now also being used for shelf life extension of cheese, rice, peanuts, pecans, prepared salads, sandwiches, and gourmet foods.

TABLE 2
Methods of atmosphere modification in packaged foods

Vacuum Packaging
Gas Packaging
Oxygen Absorbants
Ethanol Vapours

What are the advantages of gas packaging of food? The main benefits, shown in Table 4, are extended product shelf life and associated increase in market area, improved product presentation and reduction in freezer storage costs. Some of the disadvantages of the technique (Table 5) include initial cost of packaging equipment and fermentation problems caused by CO_2 resistant microorganisms.

While the atmosphere in MA packaged food has traditionally been "modified" by vacuum or gas packaging, novel methods of atmos-

TABLE 3
Basic gas mixes by food type

Product	Temp °C	Percent O ₂	Percent CO ₂	Percent N ₂
Fresh Meat	0-2	70	20	10
Cured Meat	1-3	0	50	50
Poultry	0-2	60-80	20-40	0
Wet Fish				
Fatty	0-2	0	60	40
White	0-2	30	40	30
Cheese	1-3	0	60	40
Baked Products	RT*	0	60	40
Pizza	RT	0	60	40
Dry snacks	RT	0	20-30	70-80

*Room temperature

phere modification using oxygen absorbants and ethanol vapour generators are being developed and investigated. Oxygen absorbants consist of iron oxide packaged in small sachets like a dessicant. When packed alongside food, headspace O₂ is reduced to less than 0.05 percent within hours. Oxygen absorbants have been used to "scavenge" O₂ and extend the mould free shelf life of intermediate moisture food products. Another novel innovation is atmosphere modification by ethanol vapour. Sachets, containing encapsulated food grade alcohol in powder form, are packed alongside food. When moisture is absorbed from food, ethanol vapour is released from encapsulation and permeates the package headspace. Ethanol vapours are used with "heat and serve" products and have been successfully used to extend mould free shelf life of pizza crusts and control yeast fermentation problems in uncooked fruit filled baked products.

In conclusion, MAP is without doubt the packaging technology of the 90s. It is already used extensively in Europe to extend shelf life and keeping quality of food. Here in

Canada, MAP of food is still in its infancy. However, as more Canadian companies become aware of the economic advantages of the technique, it will slowly emerge as the technology of the future propelling the Canadian food industry into a new generation of products, distribution, and marketing.

TABLE 4
Advantages of gas packaging
of food

Increased shelf life
Increased market area
Reduction in production and storage costs
Improved presentation
Fresh appearance
Clear view of product
Easy separation of slices
Enhanced colour

TABLE 5

**Disadvantages of gas packaging
of food**

High cost of packaging equipment, films, etc.
Discolouration of pigments
Leakage
Fermentation and swelling

AWARDS

The Department of Food Science and Agricultural Chemistry was well represented at this year's awards competition of the Canadian Institute of Food Science and Technology (CIFST) Conference held in Hamilton. Miss Josee Olivier was the recipient of third prize in the Gwandon Centennial Awards Competition. This competition is open to all final year undergraduate students with high academic standing and who are enrolled in Food Science programs at universities across Canada. The awards were made on the basis of performance in a written examination. Miss Olivier plans to pursue graduate studies on completion of her BSc degree.

Dr. Jim Smith was the co-recipient of the Gordon Royal Maybee Award with Dr. Buncha Ooraikul and Dr. Eric Jackson, University of Alberta and Forecrest Foods, Calgary. This award is presented in recognition of an outstanding applied development by a Canadian company or institution in the fields of food production, processing, transportation, storage, or quality control. The 1987 recipients were recognized for development and application of a new method of modified atmosphere packaging of crumpets. Since coming to Macdonald College, Dr. Smith has developed a research program in modified atmosphere packaging of bakery products, meat, and fish.

Profile: Dr. Jean David

Given a Choice "I Chose Macdonald"

by Hazel M. Clarke

It is difficult for many of us who are in any way familiar with the city of Montreal as it is today to visualize large commercial vegetable gardens in the Rosemount area on the north side of the mountain, but Jean David, Professor in Horticulture, Registrar, Associate Dean Student Affairs and Public Relations, spent many happy summers during his school days working on just such a farm for one of his grandparents. Actually both sets of grandparents had vegetable gardens so it is little wonder that at the early age of 15 1/2 after graduating from high school his heart was set on becoming a horticulturist. In pursuit of his goal Macdonald was first used as a threat and then became a reality, one that in his 47-year association with the college he has never regretted. While sorting through his papers on the eve of his retirement this coming August, Dr. David took time to reflect upon his life's work for Macdonald and for Quebec agriculture.

"To continue my education after high school," Jean David recalls, "my dad took me to Oka, but the Trappist monks said I was too young. My father said if they wouldn't take me, he would bring me to Macdonald; they changed their mind and took me! If I had been able to get a full time job when I graduated from there in 1940, I wouldn't have come to Macdonald then either, but jobs were hard to come by so I registered at Macdonald to pursue my Masters. I'll always remember one of my first lectures. It was given by Scotty MacFarlane in a thick Scottish accent, and I couldn't understand one word. I went to see him after the lecture and told him about my problem. He arranged it that after each of his lectures he would have me in his office and he would repeat the entire lecture for me. It was biochemistry and I got my best mark in that subject!"

In 1941 Jean David did get a position in the Quebec Ministry of Agriculture's Horticulture Department but was able to convince his boss that he should be able to continue his studies, which he did until 1943 when he was loaned to a vegetable dehydration company where he supervised the production and storage of vegetables and the quality control lab.

A long and close association with La Corporation des Agronomes, now l'Ordre des agronomes, began in 1943 when Jean David was awarded their first post-graduate scholarship to pursue studies in food technology. "I went down to MIT but Boston in February is not too pleasant a climate so I ended up going to the University of California, Berkeley Campus, where I received my PhD in 1949. It is also where I met my wife Jane, and I would like to mention at this time that the years since I met her have been busy ones, and I could not have accomplished what I have without her support."

The Agriculture Ministry offered him a full time job but the salary was not too enticing so Jean David convinced the deputy minister to let him work part time at Macdonald to teach and do research. "My work for the govern-

essors Association and was their Director General until 1963. Actually I was involved in the field production of vegetables right through to the processing and storage."

In March of this year Jean David was honoured with an award for his many years of service to the Association.

He also worked on studies on the marketing of horticultural products, the drafting of new grading regulations for fresh and processed products, and the revamping of government policies on various subsidies.

Meanwhile at Macdonald Dr. David was developing courses on the storage of fresh fruits and vegetables and on their processing. He was also supervising six or seven MSc students. "Back in 1955 I had the bright idea

that we should have a fruit and vegetable processing major. I proposed it to the new dean, Dr. Dion, and it was discussed by the staff but was not accepted. Perhaps I was ahead of my time. If we had started then we would have been the first in Canada and would now have a very strong program. In 1961, however, Professor Neilson and I did develop a Food Management major which both the students in Home Economics and in



Dr. Jean David, left, discusses the day's events with Professor Fred Whoriskey, of the Department of Renewable Resources, at this year's Convocation in June.

ment consisted in helping individuals, cooperatives, and companies with storage for apples, potatoes, and other vegetables. There was a lot of new development in this area and I advised on temperature and humidity conditions, and so on. I even designed some small storage units for a few growers. I also assisted in founding the Quebec Food Proc-

Agriculture could take. I was the co-chairman directing the students in this area, and I do believe it was a Food Science program in disguise as most of the graduates went on to join the food industry and some have done extremely well. Actually, graduates from other majors have also done well in that area."

Pleun van der Wel, BSc (Agr) '79, has been Managing Director of McCain Europa BV since January 1982. He has responsibility for all McCain Foods activities in The Netherlands, France, Germany, Italy, and Belgium.

Jean David reminded me that Alton McEwen, BSc (Agr) '66 is President of the Canadian operations of Rowntree Mackintosh, and his brother Murray, BSc (Agr) '53, is President of Redpath Sugars. (See the Macdonald Journal, November, 1986). Ernest Chen is in the research department at Molsons, David H. Lees, BSc (Agr) '65, is President and Chief Executive Officer of the Griffith Laboratories, a leading supplier of food ingredients, technology, processing equipment, sterilization and analytical services to the food and related industries in Canada and abroad. Paul Niedermayr, BSc (Agr) '59, started out with Humpty Dumpty and is now President and Chief Executive Officer with Shenley Canada Inc. The list could continue, but this is supposed to be featuring Jean David.

Dr. David has watched with interest as consumer demand for fresh fruit and vegetables has lowered the per capita consumption of the processed product. As there have been improvements in storage and in transportation, fresh produce is able to compete very well with the processed material even though the processed may be just as nutritious if not better than the fresh because fresh produce, particularly if it has to travel long distances, does lose some of its nutritive value. At the same time Jean David sees a great many changes occurring. "There will be a lot more convenience foods, more prepared meals, different types of meals in easily heated containers, such as the boil-in-the-bag method which is used now. New types of food will replace some of the produce we now see on the shelves. There is an interesting and fascinating future in the food processing industry."

As far as storage of fresh fruits and vegetables is concerned, Dr. David sees the need for a great deal of improvement as Quebecers continue to satisfy their own consumption

requirements. "We will see an increase in greenhouse production of vegetables, and there will be new techniques developed to reduce the cost of production. In the Department of Agricultural Engineering, for example, Professor Raghaven's controlled atmosphere storage work with our locally produced cabbages has extended the storage life until almost spring, and this is an example of the improvements that will be made, and we can do the same with other vegetables.

In 1963 the government decided that employees should not have two jobs and Dr. David was given a choice between government work and Macdonald College. "I chose to stay at Macdonald," he said, "and I don't regret having done so."

Dr. David did not lose interest in Horticulture but other demands were made on his time and, while maintaining his teaching load, he became more involved with the administrative side of the college. To go through these steps briefly, he was Secretary of Faculty from 1965 to 1972; Registrar and Student Advisor from 1969 to 1979, and Associate Dean, Student Affairs and Public Relations from 1972 to 1986. "I offered my resignation to the various deans," Jean David said, "but each asked me to continue".

Committee work is as necessary a part of academic life as is teaching and research and Jean David has calculated that he has spent 180 committee years on the Macdonald campus and 80 to 90 years for the University. "Many of the committees I was on," he pointed out, "dealt with the government. To mention only a couple, I was extremely involved in the development of having our Diploma Program financed by the provincial Ministry of Agriculture, which we finally succeeded in doing. In 1967 I was asked to represent the Faculty on the Quebec Agricultural Research Council which I did, with the exception of two years, until 1986. I was Vice-President of the Council for seven years and chaired the meeting quite often as the President could not attend many meetings. I was also a member of a committee made up of representatives from the Ministry of Agri-

culture, Macdonald and Laval, the City of Montreal and, later, the federal government. Our mandate was to identify areas of excellence in horticultural teaching and research in the province."

A branch of l'Ordre des agronomes was set up in Ste. Anne de Bellevue when the Agricultural Institute of Canada left Quebec in 1967. Dr. David was a founding member and the first Secretary. He was President of the local branch from 1984 to 1986 and Vice-President of the provincial organization in 1970.

The best part of the job? "Working with the students. Helping them plan their programs, chose the areas in which they wish to study, and help shape their future careers - that has been the most fulfilling part of my job at Macdonald." As Associate Dean Student Affairs, Jean David also had some disciplinary tasks on occasion. In particular, he remembers two incidents.

"In 1974 a security man came to my office to tell me that a group of students had been on the oval the night before planting bulbs. He gave me their names, and I hauled them in and asked 'why?' The answer was simple. They had planted 2,000 crocus bulbs in a large area which, the following spring, would read '74 for all the world to see. I could hardly bring myself to scold them, particularly as they took that opportunity to present me with a bag of bulbs! On another occasion I received a telephone call from the police telling me that they had three of our students. They told me that two big white students had been holding another one, who happened to be black, upside down over the highway, and they thought they were trying to kill him. I told them about the tradition of painting the year of graduation on any bridge or overpass that the students could find access to and that was what they had been doing. I finally got them released."

Another interesting incident with students involved the oldest of his three sons. He had started in chemical engineering but because of being very involved in sports his average

had dropped, and he wanted to come to Macdonald and take Environmental Biology. Showing no favouritism, Dr. David, as Registrar, had to write to him telling him that if he came he would be on probation. He came and graduated in 1978 with the mention "University Scholar."

Not having had a sabbatical in his 24 years at Macdonald, Jean David said that his life had been planned for so many years that he is making no plans for the future. "There is a lot of gardening to do. I might find time to work on my stamp collection, and certainly we

would like to do some travelling, sometime," he said.

Also with the future in mind, Dr. David feels strongly that Macdonald College can continue to play a great role in education and in agriculture in Quebec. He emphasizes that it is extremely important to maintain a good solid education for our students. "These are the people who are going to maintain our reputation in Quebec, in Canada, and abroad. A good education at the undergraduate level also produces students who want to go on to do graduate work and here, too, we can con-

tinue to excel."

Certainly a large measure of our excellent reputation in Quebec and in Canada has been due to the hard work and dedication of Dr. Jean David. We wish him a long, happy, healthy, retirement. It is well deserved.



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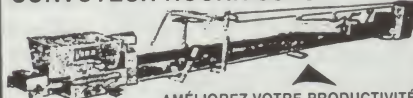
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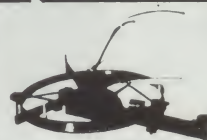
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Mac International

World Food Day

by Hazel M. Clarke

This coming October 16 will mark the sixth annual observance throughout the world, including Macdonald College, of World Food Day (WFD). Over the years at Macdonald students and staff have participated with enthusiasm and hard work but none with more dedication than Dr. Eugene Donefer, formerly of the Department of Animal Science and now Director of McGill International, and Henry Garino, Director of Extension. Gene Donefer is Chairman of the Canadian World Food Day Association and Henry Garino is President of the Quebec World Food Day Committee. They recently discussed the aims and achievements of World Food Day and its importance as an educational tool in the constant fight against hunger.

World Food Day was established in 1981 to commemorate the founding in Quebec City in 1945 of the Food and Agriculture Organization (FAO) of the United Nations. It is observed in about 140 countries with some 235 organizations being members of the World Food Day Association of Canada.



Henry Garino, I, Diane Lequin, and Ron Jones, BSc (Agr), '87, with a tank of live food fish, which was in keeping with the 1986 theme.



Professor Gene Donefer, I, and Terence McRae, BSc (Agr) '85. Both were very active in the 1984 World Food Day at Macdonald.

"It is really an educational tool," Dr. Donefer explained. "with our goal being to inform ordinary people in countries around the world about food issues. World Food Day represents an opportunity not only to talk about the world food situation but also to try to relate it to the Canadian food situation as well. All countries interact, and we cannot look at food production in one country without relating it to others."

One of the mechanisms used by World Food Day is to select a theme each year. The selection is made by FAO in Rome and each country can zero in on the specific theme. Henry Garino said that "although the commemoration is on October 16, most of the activities occur within two or three days of that date, and planning for World Food Day goes on all year." There is a national office in Ottawa where three people conduct the planning for Canada. Funding for World Food Day in Canada comes from the Canadian International Development Agency (CIDA), Agriculture Canada, and the International Development Research Centre (IDRC).



Information on the Montreal Diet Dispensary was handed out in 1985 by Rafael Hurtado-Ortega and Judy Brisson. Students and staff bring in non perishable items for the Dispensary.

"Canada has probably one of the best organized World Food Day programs in the world," Gene Donefer said. "Although there are activities in many other countries, we are used as a model. We have activities throughout Canada. The national office distributes material and information to the provincial committees. We have committees in every province in Canada and in the Northwest Territories and are in the process of establishing one in the Yukon. Each province decides on its own level of activity. It is a novel organization as there are not too many that represent so many different spheres of Canadian interest."

Non government organizations (NGOs), educational and professional organizations, food industry councils and associations,

government ministries, consumer, labour, church, and other groups, including the Federated Women's Institutes of Canada and several provincial WIs, all make up the fibre of the World Food Day Association and thus the variety of different projects and programs.

"Different groups have sponsored seminars, invited guest speakers, seen films, had world food dinners, had public displays and exhibitions on agriculture, and so on," Gene Donefer said. "There is a national World Food Day commemoration in Ottawa and several thousand high school students assemble to hear the Minister of Agriculture. As fish was the theme for last year's World Food Day, a pirogi festival was held in Saskatchewan, and they produced the world's largest pirogi! Naturally, this received a great deal of media attention, which is ideal as World Food Day information is disseminated throughout the community thus bringing the subject of food to the public's attention. We have also," he continued, "been able to produce a slide-tape show and teaching materials which we hope to have in all Canadian high schools within the year. This is within our mandate of educating, in this case students, on world food issues."

The theme for 1987 is small scale farming on a world basis. In Canada this will be modified to deal with the family farm. Information is being assembled at the national office on this topic for distribution through the provincial committees to as wide an audience as possible. Dr. Donefer said that facts sheets on World Food Day and on the various themes were augmented last year with 15,000 copies of a tabloid "Food: the essential link." A second edition with double or triple the print run is now in the works.

From the very beginning Macdonald College has been an active participant at both the local and national levels. "At Macdonald we devote October 16 to World Food Day," Henry Garino said. "The entire area of international development and world food issues is very much in the forefront of students' interests. They are taking international agri-

culture courses and are much more aware of under nourishment and malnutrition and are very willing to get involved and participate. The staff, too, are very supportive of World Food Day and many dedicate their lectures on that day to world food issues."

Gene Donefer pointed out that the Royal is an important winter event on campus and he and Henry Garino and others have been trying to establish World Food Day as a major fall term activity.

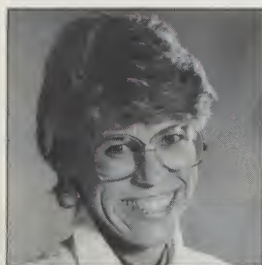
There are about 15 member associations in Quebec. "We are spread out across the province," Henry Garino said. "Different organizations and universities are members as are the UPA, the Corporation of Dietitians and Corporation of Agrologists and several NGOs. For a very modest fee an organization can belong at either the national or provincial level and, of course, once it belongs, it can participate at the committee level."

In trying to understand the world food situation people have to understand the many factors involved. As Dr. Donefer pointed out, "The problems of world food are complicated. They involve the environment, and social and political issues as well as agricultural production. There is no one simple answer, but the World Food Day Association is attempting to encourage an informed public debate on global food issues and to involve its members in sharing ideas and resources with other Canadians. The focus is on World Food Day but the Association has increasingly played a year-round role in bringing its views on food issues to the Canadian public and policy-makers."

For further information, please get in touch with the: World Food Day Association, 255 Argyle Avenue, Ottawa, Ont., K2P 1B8 (613) 233-9002. Quebec organizations may contact Henry Garino, Quebec WFD Committee, Macdonald College, 21,111 Lakeshore, Ste-Anne-de-Bellevue, Que., H9X 1C0. (514) 398-7798/7702.

Issues in Human Nutrition

Dietetics in Action



Linda Jacobs Currie is a Faculty Lecturer in the School of Dietetics and Human Nutrition. She is responsible for the program development and placement of Dietetic students in their Professional Practice (Stage) in Dietetics. A dietitian, Linda takes this opportunity to discuss two questions that she and her students often hear in the community centres and hospital clinics where dietetics students participate in nutrition education rotations.

Do you have practical questions related to foods and nutrition? Send your inquiry to the Journal Editor, and we'll try to address your concerns in future issues of the Journal. Meanwhile, on with this issue's questions.

Why does a dietitian ask questions about drugs people take? How do drugs relate to nutrition?

Many people with special needs, such as the chronically ill, children and adults with behaviorally-manifested disorders, and people with short-term, acute diseases, rely on drug therapy to produce the desired physical, physiological, and behavioral changes necessary for them to have an optimum quality of life. At the same time, drug therapy may cause undesirable side effects either from the interaction of one drug with another and/or due to the interaction of drugs with nutrients. That is why it is important for a nutrition counsellor to know which drugs you are taking, and their interrelationship with nutrition. This is particularly true in long-term, polydrug therapy, as seen in elderly clients. In addition to prescription drugs, we need to be alert to your use of over-the-counter products.

Rajesh Puri¹ of the Elizabeth Levinson Center, Maine, points out that nutrients in food can interact with a drug to modify either the rate or level of drug absorption or metabolism. Drugs can also affect nutrient availabil-

ity; they may stimulate or suppress appetite, alter nutrient absorption, impair nutrient metabolism, and increase nutrient excretion. Therefore, the drug effects we most frequently see (nausea, dry mouth, reduced appetite, food cravings) will have predictable effects on nutritional status. We need to advise clients about these effects. Changes drugs induce in nutrient absorption and metabolism are more difficult to pinpoint, but must be monitored. Do you know the long-term effect of one of the most popular tablet's abuse on your vitamin C status? This common pain relief drug depletes levels of ascorbic acid, increases its urinary excretion, and may block vitamin C absorption. Mineral oil, usually taken as a laxative, may cause the fat soluble vitamins A, D, E, and K to be lost by excretion. Antacids, depending on the brand, may decrease or increase absorption of calcium and magnesium and may interfere with iron status².

Back to the questions - changes in appetite, dietary habits, and physiological parameters must be recorded and monitored to assure the optimum use of both food and the drug to prevent detrimental drug-nutrient interactions.

Are anorexia and bulimia becoming more prevalent, or just more popular? What is bulimia?

Since the popularizing of anorexia nervosa by the death of Karen Carpenter and Jane Fonda's expose of her struggle with bulimia, both disorders have received enhanced media attention. At the same time, data collected by Dr. Pierre Leechner at the Douglas Hospital Eating Disorders Program, Verdun, indicate increasing frequency, too.

Each is a serious condition most often affecting adolescents, particularly teenage girls. However, young men and adult women make up part of the diagnosed groups. Anorexia nervosa symptoms often follow some precipitating life event, such as new environmental demands, separation and loss, or illness, and may be coupled with the effects of biologic, family, and social factors. The

glorification of youth, thinness and fitness is a real pressure to predisposed individuals. Anorexia nervosa is characterized by a relentless pursuit of thinness, particularly observable by restricted or unusual eating behaviour, excessive exercising, and subsequent emaciation. The toll of starvation on behaviour and appearance may be dramatic.

Bulimia is the name given to recurrent episodes of binge eating usually associated with vomiting³. Both disorders feature behaviour centred around concerns about body weight and shape and poor self-image. Unlike the client with anorexia nervosa, the person with bulimia may actually present a slightly overweight appearance.

Bulimic behaviour is easily concealed - the person may eat "normally" around family and peers, binging in secret places on special foods. Dr. Michael Westwood, Montreal Children's Hospital Adolescent and Youth Medicine Service⁴, notes the following supplementary clues: frequent weight fluctuations, outgoing manner, sexually active, initiated to drugs and alcohol, episodes of depression, and family history of overweight. Many adolescents and adults will not fulfil all these criteria but may still need help with food and behavior management.

Dietitians are involved in the team approach to outpatient management of bulimia; weekly discussions include topics of meal regularity, relationship of calories and nutrients to foods, monitoring frequency and volume of binges, number of vomiting episodes, and other elements of concern in nutrition education.

References

- ¹ Puri, R. 1986. Drug-nutrient interactions in people with special needs. O.N.E. Bulletin 8 (1):2.
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- ³ Fairbum, C.G., and D.M. Garner. 1986. The diagnosis of bulimia nervosa. Int. J. Eating Dis. 5 (3):403.
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Notable Events

New Research Facility Taking Shape

The ground-breaking ceremony that took place on May 4 was even more symbolic than most such occasions in that construction was well underway on the new \$375,000 plant pathogen containment facility. Indeed work had to be halted so that invited guests, including Clifford Lincoln, Quebec Minister of the Environment, and Principal David L. Johnston could be heard as they spoke just a short distance away. If anything, seeing the facility taking shape gave added impetus to the enthusiasm expressed by these gentlemen and others.

Mr. Lincoln said that he was delighted to participate in the ceremony for the new research facility which will further the use of biological control for noxious weeds and that it should be of benefit to all. He pointed out that alternates to chemicals in agriculture will not come overnight, but the research taking place at Macdonald is a realistic attempt to improve agricultural production and the environment all at the same time.



Clifford Lincoln, Minister of the Environment, addressing the special guests at the ceremonies to mark construction of the plant pathogen containment facility.



Plant Science Chairman Harold Klinck, 1, MSc (Agr) '52, PhD '55, and Douglas Pashleigh, BSc (Agr) '65, r, Macdonald Alma Mater Fund Chairman, discuss the significance of the new facility with Mr. and Mrs. Clark Bushell, who represented the Clark family at the ceremonies.

"It's exciting," said Professor Alan Watson, weed specialist in the Department of Plant Science. "It means our research will continue to expand and the spin-offs for Quebec and Canadian agriculture, indeed for all of North America, could be staggering."

Construction of the new facility, the only one in Canada and one of only three in North America, was made possible by a \$375,000 bequest from the late Wilton William Kent Clark, a descendant of the Clark family who started Clark Foods Ltd. Construction is expected to be completed in the fall and the facility will house a research laboratory with assorted growth chambers and dew chambers.

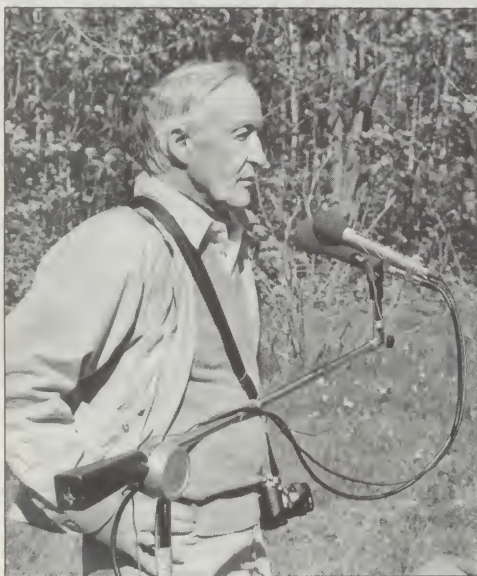
Professor Watson and his colleagues will utilize the containment installation to develop various forms of biological control to combat weeds found in North American crops which, at the same time, will reduce the reliance on chemical herbicides.

Forestry Minister Visits Arboretum



Albert Côté, Quebec Minister of Forestry, and Vice-Principal Roger Buckland enjoyed perfect weather for a walk through the Arboretum.

On May 7th the Morgan Arboretum, winner of the Médaille d'Or in the Concours de l'Ordre du Mérite Forestier 1985, hosted Albert Côté, Quebec Minister of Forestry, and the 1986 candidates to tours of the property to celebrate the 25th anniversary of the Mérite Forestier competition. Professors A.R.C. Jones and Dan MacArthur were among those who acted as guides for the tour. The event was coordinated by Suzanne Gourvil and personnel of the Ministry of Energy and Resources. Dr. Roger Buckland, Dean of the Faculty of Agriculture and Vice-Principal (Macdonald College) welcomed the Minister and other guests to the Arboretum, and Professor MacArthur invited Mr. Côté to plant a red oak and to address the gathering. Following this event Minister Côté launched the french edition of Donald MacKay's book "Heritage Lost - The Crisis in Canada's Forests." The author and translator Dr. Marcel Lortie were also present. The french title is "Un patrimoine en Péril - La crise des forêts canadiennes."



Recently retired Curator of the Morgan Arboretum, Professor Dan MacArthur adds his words of welcome to the visitors.



The Morgan Arboretum won the 1985 Forestry Gold Medal. Professor Arch Jones, Research Director, right, discusses some of the merits of the Arboretum with Forestry Minister Albert Côté.

Federal Minister of Agriculture at Macdonald

On May 26, the Honourable John Wise, Federal Minister of Agriculture, was the guest of the Macdonald Agricultural Undergraduates Society. Mr. Wise toured various areas of the college, including the new cattle and teaching research facilities, the Morgan Arboretum, the Lods Research Centre, the Agriculture Canada Muscle Biochemistry Laboratory and the Dairy Herd Analysis Service. He also attended a reception where he spoke to students, staff, and guests. Mr. Wise said that he was impressed with the new cattle facilities and felt that Macdonald was in touch with reality and in tune with the times. He also said that he would like to see more money devoted to research and development but the financial crisis that has hit farmers because of the international subsidy war had to take top priority with the special Canadian grains program providing \$1 billion in direct cash to grain and oilseed farmers.



The Honourable John Wise, centre, with Dr. C. Zarkadas, head of the muscle biochemistry laboratory, l, and Dr. Roger Buckland, Dean of the Faculty of Agriculture.



Director of the Dairy Herd Analysis Service, Jacques Jalbert, centre, guided Mr. Wise and his Chief of Staff Denis Pageau, far right, through the DHAS facilities.



The students enjoyed the opportunity of being able to chat with the Minister during the reception.

Fun Fact Fable Fiction

by Ralph H. Estey

Emeritus Professor
Department of Plant Science

Food for Thought

Since 1933, except for a period during the war, the government of the United States has been paying its farmers to reduce their production of various crops, beginning with wheat, tobacco, peanuts, and rice. The same government has paid millions of dollars to agricultural scientists to discover ways and means of increasing the production of those crops. In 1939, a food stamps plan was inaugurated as a means of providing financial assistance to people who couldn't afford to buy food in the U.S.A.

Approximately 10 years ago, when there had been a series of crop failures or very poor crops, there was talk of the need for food banks to prevent starvation during years of future crop failures. Now, when there is plenty of food to put in strategically located food banks throughout the world, there is no mention of food banks, just regulations to limit food production and subsidies that make it cost more than many can afford to pay.

Someone from another planet could be excused for thinking the inhabitants of this earth still have much to learn just to ensure their own survival.

Was it Wrong?

Everyone occasionally feels guilty about something. Just yesterday I felt a twinge of guilt when I wrote a cheque for Readers' Digest with a pen that I got for subscribing to Maclean's Magazine.

Half Price?

I wonder why the topless style hasn't caught on. Women usu-

ally go for anything that is 50 percent off.

Dried Apples

If you have more apples than you can winter through, why not dry some? Peel, core, and slice the smaller apples. Then hang them on stout strings, necklace fashion, to dry in the kitchen. A good old-fashioned occupation that will pay you dividends in pies and applesauce come summer. Old Farmers Almanac 1946.

Biblical Answer

Those who believe the Bible to be the word of God have an answer to that old question of which came first, the chicken or the egg. See Genesis 1:20.

Compact Disc

It is now possible to purchase in Montreal one small plastic disc that contains the information in all metropolitan telephone directories in Canada.

Pig Care

Hog producers can now purchase intensive care units complete with milk dispensers and a warmed sleeping area for piglets. They could easily add, if they haven't already done so, a recording of the sounds normally made by a motherly sow caring for her litter.

Apples in Bread Making

In 1938 the National Research Council of Canada sponsored some research on bread making which clearly showed that loaves of bread made with dough containing apples were larger and became stale more slowly than bread made from a standard recipe without apples.

Sign on a Vintage Car

Constipated: Can't pass anything.

Canadian Bantam Warriors

At the beginning of the first world war volunteers for the army had to be at least five feet three inches (1.6m) tall. Late in 1914 special "Bantam" units of shorter men were formed within the British army. Two such units, the 216th Battalion from Toronto, and the 143rd from British Columbia, were formed in Canada. When it was learned that the front-line performance of the Bantams was, in most respects, as effective as that of their larger comrades, they were disbanded as distinctive battalions and absorbed into the regular units.

Flattery

'Tis an old maxim in the schools
That flattery's the food of fools
Yet now and then our men of wit
Will condescend to take a bit.
Jonathan Swift (1667-1745)

Pill vs Tablet

In the past 10 years or so we have heard or read a great deal about "the pill" but is it a pill or a tablet? Tablets, such as the well-known headache tablet, are made of compressed powders, whereas pills are made of fluid or semi-fluid moist substances. Presumably, the "tablets" that Moses brought down from the mountain were made of compressed sandstone?

Protest March

Protest marches are not new. Back in the 40's a girl in New Brunswick went on a protest march shortly after midnight. She got out of my car and marched home.

Douglas - What?

The Douglas-fir, so called because of the similarity of its leaves to those of true firs, is not a fir. In some localities it is called "Douglas-spruce" but it is not a spruce, either. Lumber dealers in many places refer to it as "Oregon-pine." Its reproductive organs are of the pine type, and Robert Ripley once wrote, "Believe it or not, the Douglas-fir is not a fir but a pine," but its single leaves show that it is not a pine. Its botanical name is *Pseudotsuga* meaning false hemlock, but the botanist who gave it that name must have been a bit confused because there is little similarity between the Douglas-fir and any of the hemlocks. Regardless of the confusion around its name, the Douglas-fir, or whatever it is, has become one of the best known timber trees in the world market.

Keep on Counting

If a bright 12-year-old boy in a grammar school in Windsor, England, decided to count to a billion, and if he counted at the rate of 200 words a minute, eight hours a day, 365 days each year, he wouldn't live long enough to reach his goal, and neither would any of his children, his grandchildren, or great grandchildren if they continued where he left off and continued counting at the same rate. The fact of the matter is it would require more than 25,000 years of counting at that rate to reach a billion.

Seeking Solutions

Research Reports: A Trip to Zimbabwe

Dr. Robin K. Stewart
Associate Dean, Research

Part of my mandate is to promote International Development work in the faculty and, consequently, I was fortunate enough to be able to go to Zimbabwe in April of this year to try and promote links between our faculty and the Faculty of Agriculture in the University of Zimbabwe. Those of you, who like myself are a little long in the tooth, and a little short on awareness of the current political scene, will remember that Zimbabwe was formally Southern Rhodesia and the major city, Harare, was formally Salisbury.

The University of Zimbabwe is the only established university in Zimbabwe and it has nine faculties including a Faculty of Agriculture. This faculty is relatively new, having been formed in 1981 and is in a state of remarkable growth. With about 40 full-time academics and an enrolment of about 100 students, it offers a three-year program leading to the BSc Agriculture with honours degree in the fields of Agricultural Economics, Animal Science, Crop Science, and Soil Science. The faculty would like to offer a degree in Agricultural Engineering and, therefore, Dr. Ted McKyes from our own Department of Agricultural Engineering, accompanied Dr. Gene Donefer, Director of McGill International, and myself on the trip.

Rather than go into the details of the negotiations and perhaps dwell on the dryer aspects of developing links between universities, I would like to keep things a little bit lighter and share with you some of my experiences and impressions gained during the visit. After more than 24 hours in transit, Ted and I landed at Harare International Airport very early in the morning. Gene Donefer had preceded us, having come to Harare via Ethiopia. We were met by Mr. Solomon Tembe, a young member of the staff in the Faculty of Agriculture, and he really set the scene for our whole visit. Like literally almost all the Zimbabweans we met during our visit, he's a warm, outgoing friendly person, willing to do anything to facilitate the work in hand and increase the comfort of a visitor to the country. This is not to say the Zimbabweans are going to allow you to have an easy time. We were allowed a few hours rest before we were plunged straight into the protocol and business meetings that are a part

of negotiating collaborative efforts between universities. Gene's major role was to explain McGill's structure and the best methodology for obtaining appropriate funding. Ted was very active in curriculum development discussions with the engineers, and I spent most of my time discussing our own faculty's expertise in relation to the specific needs of the development plans of the University of Zimbabwe. The Dean of the Faculty, Dr. Mandy Rukunig welcomed us warmly and steered us quickly into business. As a young vigorous economist with an excellent working relationship with his staff he really facilitated our completing our task in good time.

To be honest, all of our time was not spent with our noses to the grindstone. We were very well treated with respect to allowing us to see as much of the Zimbabwean agriculture in the region as was reasonably possible. We were able to get a glimpse of the two major types of agriculture in progress. On the one hand, there is the highly mechanized commercial farm with the heritage of the old colonial system, where there is still evidence of a great deal of international investment. On the other hand, there is the farming going on in the so-called communal lands, where the small farmer is working with a much smaller capital investment and on a very much smaller scale.

The government's policy is to have its agricultural research service now place emphasis on the agricultural practices in the communal lands and we were shown evidence of the development of co-operative systems and farm mechanization schemes. I have a lasting impression made by one farmer in the communal lands. This man was supporting 22 people, including five wives and two daughters at a boarding school, on about 12 acres of land. He was a very astute farmer and was even long-sighted enough to have put some of his land into woodlot with the objectives of soil conservation and a cash crop for the future. Another type of farm that we had a look at was a crocodile farm. This organization was rearing thousands of crocodiles from hatchlings right through to mature 20-foot plus specimens. Although they do harvest eggs from the river, they supplement the crocodile populations in the wild by return-

ing young crocodiles at a stage later than the stage susceptible to heavy predation, and so they are actually augmenting the crocodile population in the wild.

I suppose the highlight of our travel in Zimbabwe was a visit to Victoria Falls. The power, beauty, and just overall magnificence of these falls really beggars description. To say that they are just over a 100 meters high and stretch over a distance of almost 2,000 meters really doesn't tell you very much about the falls themselves. The overall impression is one of just absolute power of water. David Livingston, whose statue stands at the falls, did attempt to describe them when he said "Scenes so lovely must have been gazed upon by angels in their flight."

There is now a flight by small aircraft over the falls called the "Flight of Angels" which allows you to go up and circle the falls several times before flying up the Zambezi for several miles to spot game. The flight is a memory that will live with me for a long time.

Certainly the flight was a tremendously exciting aspect of our visit, but also extremely interesting was the tropical rain forest that is established near the falls. About half a mile away the vegetation is dry bush but, because of the permanent spray blown from the falls themselves, as you approach them on the southerly side, you enter an area of dense tropical rain forest. You have the choice of getting suited up in oilskins or you can do what a lot of people do and strip down to shorts and take a soaking. When you walk back out again you dry within about two minutes.

We also were able to visit some game parks and had our fill of gazing at lions, buffalo, zebra, giraffes, and the whole gamut of fantastic African wildlife.

Our final impressions of Zimbabwe were very positive, and we are looking forward to future collaboration between the two faculties of agriculture.

Campus Life

Convocation, June 5, 1987

Once again, this year, the sun shone down on over 200 graduates, platform dignitaries, faculty, staff, family and friends during colourful outdoor ceremonies. Degrees were conferred and two valedictorians, Julie Belanger and Julie Paquette, spoke on behalf of the graduating class. As well, there was a presentation of the Macdonald College Award for Teaching Excellence, a presentation of two Emeritus Professors, and the conferring of an Honorary Degree.

The Macdonald College Award for Teaching Excellence

In 1985 the Faculty of Agriculture and the School of Dietetics and Human Nutrition established the Macdonald College Award for Teaching Excellence to honour an out-



The Chairman of the Board of Governors Hugh G. Hallward and Dr. Jacqueline Gerols congratulate Dr. Mandouh A. Fanous, winner of the Macdonald College Award for Teaching Excellence.

standing instructor in the faculty or the school in recognition of his/her teaching skills.

Professor Mandouh A. Fanous, recipient of the 1987 Award for Teaching Excellence, was nominated by the graduating students, graduates of the last five years, and academic staff for his outstanding qualities as an instructor. Professor Fanous was recognized for his clarity, patience, fairness and devotion to students. Citations particularly noted his

talent for making a difficult subject accessible and enjoyable.

Jacqueline Gerols, Chairman,
Award for Teaching Excellence Committee

Emeritus Professor

John Ellis Moxley received his BSc (Agr) from McGill 40 years ago this month. After his appointment as lecturer in Animal Husbandry later that same year, he was able to complete the MSc degree in 1952 and his PhD from Cornell University in 1966 while carrying out the regular duties expected of a teacher, researcher, and extension worker. He was named Professor of Animal Science in 1976.

Dr. Moxley's greatest contribution to agriculture will no doubt be recorded as the development of Quebec's Dairy Herd Analysis Service (Programme d'analyse des troupeaus laitiers du Québec), and, particularly, his vision and expertise in animal genetics and the use of computers which brought about its founding in 1966. Under Dr. Moxley's direction, the DHAS organization has grown in the intervening 20 years to the point where it employs over 200 staff, tests approximately 300,000 cows monthly in six provinces, and provides management information to producers on nutrition, genetics, reproduction and health relating to the individual animals on test. His program has also had significant impact on the artificial insemination industry by facilitating the progeny testing and proving of more bulls and, thereby, improving the genetic merit of the Canadian cow population. For his many contributions, his colleagues in several organizations have seen fit to honour him with some of their most prestigious awards, including Commandeur de l'Ordre du Mérite Agronomique (1977), Certificate of Merit, Canadian Society of Animal Science (1977), the Grindley Medal, Agricultural Institute of Canada (1979), Fellow, Agricultural Institute of Canada (1982) and, most recently, the Award of Merit, Canadian Association of Animal Breeders (1986). A citation read with one of the above awards said "...through

DHAS, an immense data bank has been developed as a facility for applied research in



Congratulations to Emeritus Professor John Moxley from Hugh Hallward.

dairy cattle production which is unparalleled in Canada and comparable to few in the world."

As evidence of his recognition internationally, Dr. Moxley has been a consultant to the International Dairy Federation since 1978 and has consulted for various organizations in several countries, notably China and countries in the Caribbean.

As a teacher, he has performed at the diploma, degree, and graduate levels. As the only professor of animal breeding and genetics in the early days, he carried the entire teaching load in this area for the department. His trademarks were a willingness to share his knowledge and an unselfishness with his time which garnered him immense respect from the students who got to know him well. As a researcher, he has contributed to the substantial advances that have been made in the field of domestic animal breeding and has helped spread the word through numerous presentations, publications, and graduates of the faculty who have had the benefit of his counsel. A major contribution was his ability to combine research and service under one roof in DHAS, thereby extracting maximum value from the collected field data.

Not only did Dr. Moxley serve on numerous faculty and university committees, he also

served his community in such diverse activities as a Scientific Advisor, Montreal Diet Dispensary; Director, Royal Winter Fair; Member, Conseil des Productions Animales du Québec; and President, Canadian Society of Animal Science.

Despite his considerable achievements, Dr. Moxley has remained a home-loving, modest man, always anxious to give credit to others. One of the greatest compliments that can be paid to an individual is the unswerving loyalty from those with whom he works; John Moxley received this in large measure.

Mr. Chairman of the Board, I am honoured to present to you and this convocation, our colleague, John Ellis Moxley, and ask you to designate him Emeritus Professor of our faculty and of the university.

Bruce R. Downey, Chairman,
Department of Animal Science

Emeritus Professor

Waldemar Esi Sackston came to McGill University in 1960 as Professor and was appointed Chairman of the Plant Pathology Department in 1964. He relinquished the chair in 1969 but continued his teaching, research, and committee work.

Having obtained his early education in Winnipeg and his BSA as a gold-medal student at the University of Manitoba, he successfully completed the MSc degree at McGill University in 1940 and the PhD degree at the University of Minnesota in 1949. From 1941 to 1960 he was employed by the Canada Department of Agriculture, where he rose through the ranks to Senior Plant Pathologist and Head of the Plant Pathology Laboratory at Winnipeg.

Dr. Sackston has distinguished himself as a research scientist, teacher, and administrator, as well as in international activities. He pioneered research on sunflower diseases and has achieved international recognition as a world authority in this field. He was the first to describe *Verticillium* wilt of sunflower in

North America, and contributed significantly to the early work on sunflower rust. He has authored or co-authored over 80 papers in refereed scientific journals. He has also published over 100 non-refereed papers, abstracts, and articles. His editorial skills have been recognized through his appointments as Associate Editor and to Editorial Boards of a number of scientific journals.

Over the years Dr. Sackston has been considered an outstanding teacher. He has directed the work of some 25 students in MSc and PhD programs at Macdonald College. He served for three years as an elected faculty representative on the McGill Senate, a year as Chairman of Faculty staff meetings, and two years as a member of the Executive Committee of the Faculty of Graduate Studies and Research. He has served as President of the Canadian Phytopathological Society, the International Sunflower Association, and the Quebec Society for the Protection of Plants.

On the international scene, Dr. Sackston has



Emeritus Professor W.E. Sackston accepting congratulations from Hugh Hallward.

received and accepted many invitations to participate in overseas work programs. He was granted a leave of absence from McGill University from 1972 to 1977 to serve as Research Coordinator, National Research Centre for Oilseed Crops, at Cordoba, Spain, sponsored by the World Bank and the Gov-

ernment of Spain. At various times he has served as a consultant on sunflower diseases in Chile and Uruguay and has worked for short periods in other countries, including the U.S.S.R., the United Kingdom, and France. This has been facilitated by his fluency in the Spanish, French, and Russian languages, as well as in English.

His scientific contributions have resulted in a number of prestigious awards. In 1967 he was awarded the Canada Centennial Medal. In 1982 he received the V.S. Pustovoit Award of the International Sunflower Association and was elected a Fellow of the Canadian Phytopathological Society. In 1983 he was honoured by the Dr. and Mrs. D.L. Bailey Award of the Canadian Phytopathological Society. In 1985 he was made a Fellow of the American Phytopathological Society.

While he officially retired in 1983 and no longer participates in teaching or university committee work, Dr. Sackston is still an active, full-time researcher in the Department of Plant Science. He is among the fortunate few for whom research is as much a hobby as a scientific endeavour.

Mr. Chairman of the Board, it gives me great pleasure to present to you and to this convocation, our colleague, Waldemar Esi Sackston, that you may designate him Emeritus Professor of this Faculty and of the University.

Harold R. Klinck, Chairman,
Department of Plant Science

Honorary Degree

Mr. Chancellor, it is my privilege and honour to introduce to you and to this Convocation, Herbert Farquhar MacRae, a distinguished professor, university administrator, and Canadian agrologist.

Dr. MacRae was born in Cape Breton, Nova Scotia. Before deciding to pursue a career in agriculture, he taught school for five years in that province. He then attended the Nova

Scotia Agricultural College and Macdonald College of McGill University. He was President of the Students' Council at both institutions.

After obtaining his BSc (Agr) in Agricultural Chemistry in 1954, Dr. MacRae remained at Macdonald College in the Department of



With assistance from Steve Olive, Chancellor A. Jean de Grandpré confers an Honorary Degree on Dr. Herbert F. MacRae, Principal of the Nova Scotia Agricultural College.

Agricultural Chemistry to pursue his post-graduate studies, obtaining his MSc and PhD.

In 1960 Dr. MacRae joined the Food and Agricultural Directorate in Ottawa, only to be lured back to Macdonald College to become an Assistant Professor in the Department of Animal Science in 1961. He became Chairman of that Department in 1967, a position he held until 1972. Dr. MacRae developed research and teaching programs in the area of animal products, particularly in the area of milk proteins as related to milk quality. He, along with Professor Moxley who established the Dairy Herd Analysis Service, pioneered the use of infra-red milk analysis on a commercial scale, with the first such unit in North America going into operation here at Macdonald College in the laboratories of the Dairy Herd Analysis Service.

In 1972 Dr. MacRae returned to Nova Scotia to become Principal of the Nova Scotia

Agricultural College. It is in this position that Dr. MacRae has made his greatest contribution as an outstanding Canadian agrologist and university administrator. He has guided the development of the Nova Scotia Agricultural College from an institution offering two-year programs in Agricultural Science and Agricultural Technology to becoming a full-fledged degree-granting institution serving all of Atlantic Canada. In association with Dalhousie University, its first class of approximately 45 men and women graduated in 1985.

Over the 15 years of Dr. MacRae's principalship from 1972 to 1987, the Nova Scotia Agricultural College has experienced tremendous growth: enrolment has increased 65 percent; the Agricultural Science program has expanded to a four-year program; the number of full-time faculty has increased by 75 percent and a capital building program in excess of \$25 million has been realized. It is through Dr. MacRae's outstanding leadership, integrity, and respect that the Nova Scotia Agricultural College has been able to achieve this new stature.

Dr. MacRae has also provided outstanding leadership to the entire Canadian agricultural community. In 1974 he was a charter member of the Canadian Agricultural Research Council, becoming President of that body in 1986. Dr. MacRae has twice served as President of the Canadian Association of Faculties of Agriculture and Veterinary Medicine. His contributions have been recognized by his peers in that he has been awarded the Certificate of Merit by the Canadian Society of Animal Science and the Queen's Silver Jubilee Medal.

Mr. Chancellor, may I present to you, so that you may confer upon him the degree of Doctor of Science *honoris causa*, this most distinguished Canadian agrologist and university administrator, Professor Herbert Farquhar MacRae.

Roger B. Buckland
Vice-Principal (Macdonald College)
and Dean, Faculty of Agriculture

(Excerpts from Dr. MacRae's Convocation Address will be published in the next issue.)



Once again, the piper leads the way on a clear and sunny day.

Reunion '87

HOMECOMING '87

The Reunion '87 Committee, under the capable leadership of Trinkie (Hooker) Coffin, BSc (HEC) '62, is delighted to announce a full and varied schedule of events for the September 26th Macdonald Homecoming. Graduates from far and near are cordially invited to return to the college and take part in the day's activities including two seminars on the future of the family farm and exciting new developments in the areas of food science and

human nutrition, campus van tours, department displays and visits, a special luncheon, and "Meet the Dean" Reception. Complete details of the program will be listed in the Reunion brochure and sent to honour years (years ending in 2s and 7s), and to Quebec and Ottawa area graduates early in August.

In addition to the scheduled events, Class Chairmen (listed below) are busy planning

activities for their respective classes. If this is a reunion year for you, but your class is not listed below, why not contact Jo-Anne Daviau (514) 398-3554 at 3605 Mountain Steet, Montreal, Quebec, H3G 2M1 and talk over plans for your year!

How We Stay In Touch

For the class of 1987, the vital communication link between class members and Macdonald College will continue thanks to the efforts of six volunteers. This special group of officers, consisting of representatives and agents, are the medium through which graduates maintain an interest and keep in touch with their alma mater.

Representing the Faculty of Agriculture, the School of Dietetics and Human Nutrition, and the Diploma Program are Kelley Allen, Gerry Cornell, Yolanda Gnyra, Lise Ledoux, Betsy Wells, and Phyllis Danforth.

An annual newsletter to classmates from the class representative has been the most effective and usual method of communication to keep graduates in contact with each other and maintain a strong class identity. Friendships are further strengthened by a reunion organized every fifth year which not only brings alumni together but also back to their "old stomping ground."

The role of class agent is to encourage alumni support for the university through the Alma

CLASS CHAIRMEN

Mr. Paul Jensen
Ms. Andrea Spiegel
Mr. Bertrand Montpetit
Ms. Ginger Stone
Mr. Bill Suddard
Mr. Geoffrey Chislett
Mr. Robin Marshall
Mr. Ronald Sevigny
Mr. D. Lyall MacLachlan
Ms. Gloria Bishop
Mr. Ken Woolrich
Mr. Doug Pashleigh
Mrs. Helen Goldhamer (Miller)
Mr. Douglas Henderson
Mr. Scott Kneeland
Mr. A.W.S. Hunter

FACULTY & YEAR

Agriculture & Food Science '82

Diploma Agriculture '82
Agriculture & Food Science '77
Agriculture & Home Economics '72

Agriculture & Home Economics '67

Agriculture & Home Economics '62

Agriculture & Home Economics '57
Agriculture & Home Economics '52
Agriculture & Home Economics '47
Agriculture & Home Economics '42
Agriculture & Home Economics '37
Agriculture & Home Economics '32

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Mater Fund, a program which is essential in providing valuable funds for libraries, research, faculty development, student projects, scholarships, etc. Many graduates prefer to earmark their donation to a particular project and find this avenue very rewarding.

At a reception honouring Graduating Class Officers held at Martlet House on March 24, 1987, Principal David Johnston, Deans, and Directors were present to give thanks for the important service these volunteers will per-

form for McGill in the future. On behalf of the university, Principal Johnston expressed his sincere appreciation to the 1987 agents and representatives for their valuable commitment.

MAC-AVRA is Growing!

the Alumni Volunteer Recruiters' Association (AVRA) was started in 1985 on the downtown campus as a joint venture of McGill's Information and Liaison Office and

the Graduates' Society to involve a network of alumni volunteers in Canada, the United States, and abroad in the student recruitment process.

The Mac-Avra campaign started in September 1986 and there are already 20 volunteers willing and able to inform prospective students about Macdonald. At get togethers with graduates Dean Buckland and other staff members have outlined the various areas in which a Mac-AVRA member may participate. They may take part in their local high school(s) career days or information sessions, supplying information to teachers, guidance counsellors, principals, and youth leaders in the community. They may make personal contact, telephone calls, or host a reception for potential students, answer their questions, and supply information on the various programs at Macdonald, on campus life, the local community, the Montreal area and, of course, career opportunities. As graduates, these volunteers are able to provide not only information on programs and campus life but also a personal perspective on their professional field.

McGill and Macdonald are very fortunate in having much to offer in every aspect of student life. Those who have been a part of it all are the perfect ones to convey the message, and they do!



Attending the Graduating Class Officers Reception from Macdonald College are (l to r) Gerry Cornell, Betsy Wells, Dr. Jacqueline Gerols (Associate Dean, Student Affairs), Lise Ledoux, and Yolanda Gnyra.

COME BACK AND MEET YOUR CLASSMATES

REUNION '87

All welcome, especially graduates of years ending in 2 or 7

**Macdonald Reunion will be held on September 26 at Macdonald College
in Ste. Anne de Bellevue**

Beyond These Gates

Macdonald Branch Reception: Toronto

For the second year in a row, Mac grads in the Toronto region got together for an evening with Dean Buckland at the World Trade Club. Over 80 graduates, spouses, and friends turned out on Monday, May 25, 1987, to reminisce, to hear about many of the new developments taking place at the college, and to learn what student life is like at Mac today.

Jim Wilding, BSc (Agr) '54, President of the Macdonald Branch of the McGill Graduates' Society travelled to Toronto with Dean Buckland to be at the reception and gave graduates an update on Branch activities including plans for Reunion '87, which will take place on Saturday, September 26, 1987.

Host club member Murray McEwen, BSc (Agr) '53, and his wife Eleanor McEwen, Dip Ed '52, welcome Larry Johnston, BSc (Agr) '72 to the Toronto area.



Anna Hobbs, BSc (HEc) '58, thanks Dean Buckland for his encouraging remarks about Macdonald.



Michael Johnson, BSc (Agr) '59, Penny Johnson, Elaine Gittens, Byron Beeler, BSc (Agr) '58, hear Macdonald news from Roger Buckland, BSc (Agr) '63.

Diploma Corner

Diploma Graduates Reunion

by Hazel M. Clarke

It might just be the understatement of the year to say that "Dips sure do like a party!" They had one last April 4th. It was a fantastic success, and they certainly plan to have many more in the future. Some 115 Diploma graduates, family, and friends responded to the invitations sent out by Angus MacKinnon, Dip '84, from Coaticook, and Neil Richardson, Dip '80, from Howick, to attend the first-ever Diploma Graduates' Reunion. Afternoon festivities were held at the Farm Centre and tours of the new cattle facilities were given by present Dip students. The party in the evening was held in the Deep End in the Centennial Centre. Marcel Couture,

Director of the Diploma in Agriculture Program, and the rest of the Diploma staff helped to organize the day's activities, and Marcel, Angus, and Neil are pleased with the reunion and the plans that are being made for the future.

Angus MacKinnon, Dip '84, told me that his class has had a reunion each year since they graduated. Last year it was held at his place. Knowing how successful the class reunions are, Angus and Neil decided to try for a bigger reunion. As Angus said, "We thought it would be a great idea to get all Dips together. We think the same. We come from similar

backgrounds. We know each other in the various communities and to get together for a reunion at Macdonald College brings back a lot of memories. Macdonald College is filled with tradition. We are starting a new one."

Neil Richardson's sentiments were similar: "We wanted to get people together, to remember Mac, and what we enjoyed here. We owe a lot to Macdonald, and it is great to come back and to find out what is happening at the college now."

One of the biggest happenings at the college, of course, has been the opening of the new



Angus MacKinnon, Dip '84, left, one of the organizers of the successful reunion, with Brenda Broadhurst, Elaine Kirby, Dip '84, and Darwin Smith, Dip '82. Angus is on the home farm and is also very busy in various community endeavours. Elaine has been working at a seniors' residence, and Darwin is a sales rep for a feed company. Elaine told us that she and Darwin planned to be married in July.



The other organizer Neil Richardson, Dip '80, right, welcomes Peter Boersen, Dip '79. Peter is working for DHAS and Neil and his wife Pamela have a dairy farm in Howick.

cattle facilities and most of the graduates who took the guided tour were impressed. Lindsay Broadhurst, Dip '84, found the facilities impressive as did Craig Findlay, Dip '86, who said, "you can do a lot of teaching in this barn; it has to be the best I've ever seen." Angus thought it would put Macdonald College on the map! "People will say Macdonald College is the only place to go," he said, "It shows all the facets of agriculture and new ways of doing things." Don Garfat, Dip '85, said that he feels strongly that anyone going into or staying in agriculture should go to college and he feels that the new facilities will certainly help the student. Kenny O'Farrell, Dip '80, summed it up well when he said, "The new facilities are grander than grand!"

Dr. Roger Buckland, Dean of the Faculty of Agriculture, Marcel Couture, and Rudi Dalenach, Director of the College Farm, welcomed the Diploma graduates to Macdonald. The Dean emphasized that the alumni of Macdonald are very important. In a lighter vein, after some prompting from the audience, the Dean said that the college staff would be pleased to challenge any Diploma graduates hockey team if the ice were available at the time of another reunion. After loud applause he continued, "My only reservation in suggesting this is that I don't want you to be disappointed for the rest of your reunion when you lose the game!"

When the Dip graduates were asked if they would like to continue meeting in the years to come, the affirmative roar of approval might be likened to the Concord breaking the sound barrier. Marcel is pleased and, as he told me some time after the April 4 reunion, "As a result of the success of this first event, we have decided to form a Macdonald College Diploma Graduates' Association. As the Diploma Program graduated the first Dips in 1907 it seems befitting that 80 years later we are starting this association. We have held our first meetings and elected our first executive with Angus MacKinnon as President and Neil Richardson as Vice President. There are

class representatives and members at large. We still have a great deal to work on, but it is a marvelous step in the right direction. We hope to arrange a meeting for this coming fall and to see a large turnout at next year's College Royal and Livestock Show. As a Dip '65, Marcel has been involved in the Diploma Program for some time. "I have been thinking of creating such an organization for years," Marcel continued, "but didn't have too much success working with the older generation. It is the younger generation that has got it off the ground and I'm delighted. Perhaps now the older grads will join in and

help us make it an association of interest to all Diploma graduates."

Class Reps Who Volunteer at Reunion

Mike Duncan, '77, Hugh Maynard, '78, Peter Boersen, '79. Neil Richardson, '80, Martha Robinson, '81, Darwin Smith, '82, Neil Burns, '83, Angus MacKinnon, '84, Peter MacKinnon, '85, Alex Milne, '85, Craig Findlay, '86. The Director among Class Reps is Hugh Maynard, and the Members-at-Large are Peter Boersen and Martha Robinson.



A scrapbook full of memories shared here by, l to r, from 1980, Callum McKinven, Doug Gilpin, and Gary Hamilton, and from '79, Chris Gasser.



Neil Burns, Dip '83, and Darryl Robinson, Dip '82, who has just graduated from Mac with his BSc (Agr).



Three '85s, l to r, Ghislain Couture, Don Garfat, and James Joyce.

QWI

Executive Corner

Rally in Matagami

Lucy French, President, Elsie Prevost, 2nd Vice-President, Pearle Yates, Provincial International Affairs Convener and Sheila Washer, Secretary, travelled by car to Matagami for a rally held on May 28th. The countryside in the Matagami area is very beautiful with many lakes and trees, and we met numerous trucks loaded down with lumber as we travelled the roads.

We were greeted by Betty Comba, Matagami branch President, who sat us down to a delicious meal and offered that wonderful kind of hospitality that one always remembers.

We were received warmly and introduced to the branch members in a cosy hall in the town. The members had donated their special dishes, and we were treated to a wonderful pot luck supper, which we all enjoyed immensely.

Matagami branch is alive and well with newly recruited members introduced to the Women's Institutes through the efforts of Betty Comba. They seem eager to assist with projects and made suggestions drawn from their own experiences. Some of the members arrived in Matagami from other parts of Canada: P.E.I., Montreal, Winnipeg, and one had originally lived in Poland. This energetic and enthusiastic group of WI members will no doubt attract others with their warmth and fellowship and thus enrich the lives of women in the community.

Following the meeting we were taken to the building where the Cercles des Fermières members pursue their interest in weaving. Some of the WI members belong to this group, and we were shown the beautiful work done there.

Betty arranged a tour through the mines for us which was a unique and interesting experience. The first day we spent two hours touring the mine itself. We donned coveralls, safety helmet, safety boots, battery to operate the lamp on our helmets and, laden down with this heavy apparel made our descent into the mine to 825 feet. We scrambled through the tunnels pressing ourselves against the

walls to avoid being run over by the tractors excavating the ore from the alcoves. The men are all very skilled workers who knew exactly what they were doing, but we were not sure what they were doing! It really was a bit unnerving in a tunnel only 10 feet wide or so and about 8 feet high, to have a large noisy tractor whish by. The only light in these tunnels, except for the stations, is the light on your helmet and the light on the tractor as it passes by. We walked down to a depth of 1,000 feet. These tunnels are very well ventilated with air forced through large ducts from the surface.

We spent two hours the following day witnessing how the zinc and copper is extracted from the ore. It is a long process and there is not room to report it all.

We thank Betty for arranging these tours. We are all much better educated now about how a mine operates and how isolated some of our residents are in a mining town far from other towns.

The Women's Institutes provide a fellowship here that is vital to the women in the area. We wish them good luck and much success in their work for a better "Home and Country."

Sheila Washer
QWI Secretary

ACWW REGIONAL CONFERENCE

The Regional Conference of the Associated Country Women of the World was held at Mill River Conference Center and Resort at Woodstock, P.E.I., May 11. The opening ceremony was held on Monday evening in the theatre of Westisle Composite High School in Woodstock. The delegates of the participating constituents societies (the Women's Institutes of Ontario, Prince Edward Island, Nova Scotia, New Brunswick, Newfoundland and Quebec, the Cercles des Fermières du Quebec, and Women of National Farmer's Union) were escorted to their places by a young woman piper.

The theme of the conference was "Action Can Work Wonders." Mme Yolande Calve, provincial treasurer of Cercles des Fermières du Quebec and Area President of ACWW for Canada, was chairman.

After a formal welcome each delegate was introduced and spoke a few words. Then Dr. Ellen McLean, World President of ACWW, spoke and everyone listened. She is a marvelous speaker, a warm and beautiful person, and we were privileged to hear her several times during the conference.

The conference stressed our link with women around the world and how women in devel-



Carol Petch, 1, President of Chateauguay-Huntingdon County, and Muriel Duffy, right, President of Richmond County, catch up on Macdonald news from Kay Moxley at the Board Tea given by Vicki Buckland.

oping countries have benefited from being a part of ACWW and how we can continue to work for a better quality of life for human beings and for peace. Dr. McLean mentioned the many worthwhile projects of ACWW and the many ways constituent societies had helped.

There were five extremely interesting workshops, a projects presentation where two women represented the country helping and the country that was helped. This presentation was enhanced by the women representing countries that had been helped, wearing the costumes of that country. Your delegate from Quebec spoke on "Pennies for Friendship." She was well received and Dr. McLean asked permission to use her speech to publicize and promote ACWW.

On the last morning the Federated President, Beatrice Reeves, headed a panel of new Canadians who spoke on the problems they encountered on coming to live in Canada.

There was a motion recommending that ACWW and its constituent societies lobby governments to assist and encourage women from developing countries and be a part of our government assisted scholarship program on a 50-50 basis. Dr. McLean mentioned that, as a result of a resolution passed at the ACWW Triennium in Ireland, WIS lobby for salaries for homemakers.

The conference stressed our link with women around the world and how women in developing countries have benefited from being a part of ACWW and how we can continue to work for a better quality of life for human beings and for peace. Dr. McLean mentioned the many worthwhile projects of ACWW and the many ways constituent societies had helped. ACWW receives many requests for help, and any branch that would like to help can write to Mrs. Jennie Pearce, Associated Country Women of the World, Vincent House, Vincent Square, London, England. SW1P 2NB. Mrs. Pearce will find you a project corresponding to the amount you wish to give. Some of the poorer constituent societies have trouble raising actual cash to



Donna Bider Clark, centre, with her proud mother, 1, and QWI President Lucy French.

pay their dues to ACWW and some branches have offered to pay in their name. Every little bit helps.

The Federated Women's Institute of Canada has taken on a new international project - to bring a woman from one of our sister ACWW developing countries to study development at the Coady Institute in Nova Scotia. We can send our contributions to "The International Development Fund," F.W.I.C., Suite 606, 251 Bank Street, Ottawa, Ontario, K2P 1X3.

Pearle E. Yates,
Provincial Convener of International Affairs

Annual Convention

Just over 150 people answered the roll call at the QWI Annual Convention held May 13 and 14 at Macdonald College. Nineteen members were attending their first convention. In her report the President Lucy French noted a busy year for the Executive and for herself and in her address she pointed out that, as this is International Year of the Homeless, she hoped that WI members would pay particular attention to the needs of homeless women in rural areas. "If there is a shelter in your area, perhaps your branch could support it." If more shelters are needed, then it is hoped they will be provided.

These reports and others as well as information on area rallies, the safety project "See Me Be Seen," and much more may be found in the Annual Report. Interesting reading!

Donna Bider-Clark, a 1980 Diploma graduate from Macdonald College who is now farming with her husband in Lachute, gave an extremely informative illustrated talk on her farming experiences in New Zealand and her travels abroad and in Canada. Donna spent nine months in New Zealand, first working on a sheep farm on the South Island. She worked with 2,300 dual purpose sheep for four months. She used a motorbike with a side car, which was used to transport the dogs and sick or injured sheep. She often had two dogs, three sheep, and several lambs in the side car and on her lap, all at the same time! Donna said that the Maori do the shearing and are tremendously fast, being able to shear a sheep in a minute to a minute and a half. During lambing season there is a check four times a day for stray and orphan lambs. They once ended up with 26 orphans in the lambing pens being bottle fed. Each lamb and its mother had a number and a colour painted on it. If number 44 orange got separated from its mother, then you had to find a number 44 orange mother and get them back together. Every effort was made to keep lamb losses down. Bigger ranges had 25 to 50,000 sheep with possibly 10 farmers grazing their flocks together.

Donna also went to the North Island and worked on an average-size dairy farm where they were milking 230 cows. As the price of milk is so low, you need that many cows, Donna told her audience and said the number was now up to 350. Donna again worked with dogs and motorbikes and also did a lot of walking. The animals were mostly Jerseys or Jersey-Holstein crosses. The cows grazed year round with only a little hay or haylage in winter months. She pointed out that Christmas time is the peak period for baling hay, a routine job for Christmas Eve! There are no barns, just dairy sheds where the dogs push the animals through to milking parlours. Cows are all bred at the same time and Donna said that calving season "can be scary" with some 200 cows all calving at the same time.

Donna also enjoyed seeing other parts of the country and took part in some marvelous hiking trips. "It was a self-improvement program for me," she said, "and the greatest experience was meeting and making friends. The people, particularly those I lived with, were fantastic."

IN STITCHES

by M. Elizabeth
Jennaway-Eaman
Faculty of Education



Summer is almost over and it will soon be time to think about those competition items for next May. If you are a first-time competitor or one who is always just outside the prize-winning category, maybe you need a helping hand or a big sister who has been a winner to provide you with a few tips. Those of you who are always in the top categories should consider passing on some of the inside information! This could be done by creating couple competitions, whereby the total score of the novice and the experienced person are added together. There is then added incentive to improve the partner's skills.

Helping each other is difficult in competition because very little separates the top prize winners and, if the work is technically perfect (even tension and stitches, no loose ends, no stains or dirty marks, new), the fabric ideally suited to the end use of the article, then the aesthetic qualities of colour, texture, and judge's personal tastes do affect the final rating. But all aspects are considered and are important.

Knitting and crochet always attract a lot of entries and in those areas the competition is stiff, and choosing the top five is hard for the judge, too. At the provincial level you are competing with many more than at county or branch level. Expo-Quebec is even tougher, but if you are above 19.4 in my judging, you should have a good chance, depending upon the number of entrants. If I have pointed out a technical fault, chances are another judge will see it, too, but often it can be rectified.

Being critical of one's own work is hard and accepting constructive criticism of one's work is harder, particularly when you have expended much time and effort.

Some of you have told me that having heard my judging comments so often you find I am sitting by your side when you are working

and that you re-do something which you previously would have accepted. Great!! If your standards have changed, then you will be successful. I look forward to seeing the results of your labour next spring.

SAFETY FIRST

by Anne Robertson



Fall is the time of year when we like to go out into the country to see and enjoy the colour. Sometimes we are tempted to pick some of the lovely coloured leaves. Be careful in case you are tempted to pick poison ivy. The leaves are very pretty in the fall. If you find a creeper with leaves in sets of three, beware! A familiar creeper is the Virginia creeper which has five parts to its leaf and is quite safe to pick. Berries are attractive, but some, like deadly nightshade, are poisonous. Mushroom rooms are another fall attraction but, here again, some are poisonous. Agriculture Canada publishes a booklet on 'Mushroom Collecting for Beginners' No. 861 (1972). Better still, to be sure, go with someone who is an expert.



The tour of the new cattle facilities was a great success.

WITH THE BRANCHES

ABITIBI: Matagami toured their local hospital and had a question and answer period with a physician, Betty Comba presented a cheque to the Head Nurse of the children's ward, Ginette Labbe. Their cookbooks have been selling very well; they only have a few left.

ARGENTEUIL: Arundel Moscow trams 'Jains' collection in San Francisco, the tram dedicated by Mayor Dianne Feinstein was dubbed the streetcar named Desire for Peace. Dictionaries were given again this year to graduating students as well as a card of congratulations. Brownsburg reported that 79 farms in the Laurentian area have ceased operations this past year. Citizenship Convener recalled that Citizenship Week was April 12-18 and that the Citizenship Act was a milestone in 1947, bringing into effect the Charter of Rights and Freedoms, Canadians need to realize that it takes continuing effort to keep those rights, freedoms and responsibilities to make a better Canada. Dalesville-Louisa Consider the Maple Tree - God's gift of nature to mankind, providing beauty, warmth and sweetness. Senior Citizens were the guests at the branch's annual "Get Together." The theme for the party was International and the hall was decorated with colourful posters, a collection of dolls from many different countries was on display, as well as other memorabilia from around the world. A woman in the authentic Japanese costume welcomed the guests on their arrival; there were warbrides from Scotland and Holland, two from England who are in this branch, a woman who had lived for many years in South Africa and a young woman who has recently come from the Philippines. Frontier Mrs. Eleanor Downing, granddaughter of Mrs. Morrison, was asked to speak to the group. Eleanor comes from Coutts, Alberta, where her husband works for Customs. She belongs to a WI group who meet often with a group in Montana and also return to visit in Alberta. Grenville Money was given to "Our House and Interlude," also to the Laurentian Regional School for the Spectrum. They also celebrated the birthday of the woman who had started the Grenville branch, Mrs. Louise Murray. Jerusalem-Bethany (motto) We enjoy the experience of working together. Pioneer "Blessed are they - who can forgive the many failings of the aged and still be patient" was read by Mrs. R. Hyde. Served refreshments at the open meeting of the Historical Museum. Upper Lachute (East End) a very successful sale of homemade and handmade articles followed one meeting. Dr. Geo Lemire, a local veterinarian, ably commented on the beautiful slides of his trip to Brazil and Portugal.

BALDWIN CARTIER: West Island were shown a slide presentation: "The Invisible Handicap" explaining what learning disabilities are from a parent's perspective. Guest speakers were Wendy Campbell, who is on the Board of the Quebec Association for Children and Adults With Learning Disabilities, is the National Director of the AQUA-PERCEP Program and is a former Special Education teacher and originator of the

AQUA-PERCEP Program, and Maureen Hunt who is the President of the West Island chapter of the QACLD as well as a mother of a child with a learning disability. Guest, Pat Kennedy, presented her miniature "Dream Home" and discussed the fascinating hobby of collecting and making miniatures.

BONAVENTURE: Black Cape listened to an article on Siamese twins (attached at the head) who have recently started college at the age of 38. Grand Cascapedia viewed a video on arthritis, courtesy of Helen Campbell. New Richmond West Each member brought in a variety plate and a quiz or game. Whoever won the game, won that member's plate. Everyone was able to go home with something different.

CHATEAUGUAY-HUNTINGDON: Aubrey-Riverfield One meeting was Grandmother's Day and everyone had to wear or show something that belonged to a Grandmother. Served lunch at the 4-H Achievement Day. Cheese will keep well if stored in a plastic bag with two cubes of sugar. Dewittville Mary McConomy demonstrated making dried, pressed flower arrangements; Rita Steele demonstrated making "Strumpkins" which are soft sculptured dolls made of nylon stockings. Stuffing and thread are used to mould the features. Dundee served tea and cookies at the Arts & Crafts Senior Citizens. Franklin Center Marie Bertrand gave two demonstrations: one on rug braiding and one on counted cross stitch. Enjoyed a boat trip in Sorel and enjoyed a meeting at the Brocklehurst Greenhouse. Hemmingford Mrs. E. Lacasse and Mr. Ormel Coupal Jr. spoke about a nursing home located in town which opened last July. The home is for Senior Citizens, and



Joyce Lancaster makes a friend in the children's area of the farm.

for patients who need a place to convalesce and who cannot manage at home for a while. A local notary spoke about wills. Howick watched a demonstration on goose egg art and soap stone carving; toured a goats and cheese operation, and heard from speaker, Gloria Peddie, who has a Bed and Breakfast business. Huntingdon Seat belts in school buses may become law. Heard from Mr. Jean Dahme and Sharon Anderson spoke on the

Maison des Jeunes. Ormstown Connie McClintock spoke and showed artifacts on the Arctic and the Inuit people with whom she had lived in Northern Quebec for three years, and Doris Lafferty has compiled a "history of Ormstown WI." Copies are being sold as part of their twinning project with Lacombe, Alberta.

COMPTON: Brookbury gave five fruit plates to shut-ins. Sawyerville members pooled their ideas and had a scarf tying demonstration.

MAGDALEN ISLANDS: Goose Isle Congratulations on your new newspaper!

MEGANTIC: Inverness Alice Muir for Citizenship and Legislation discussed the closing of the Royal Bank at Inverness which is causing quite a stir of disappointment in the village and surrounding communities. Kinnear's Mills Dorothy Bolduc, Audrey Allan and Helen Jamieson have had a perfect attendance this year and a parcel of pill bottles, knitted bandages and envelopes have been sent to the Phebe Hospital Monrovia, Liberia. And 5 1/2 lbs. of used stamps were sent to the Leprosy Mission.

MISSISQUOI: Dunham A co-hostess "April-Fooled" the group with her "April-Food" squares mixed in with a plate of m-m-m good ones. What were they? Chocolate all around iced olive sandwiches! A motion was made to donate books to the greatest improvement in Reading in level 6 at the local elementary school. Stanbridge East (motto) Take time to deliberate, but when time arrives for action, stop thinking and go on.

MONTCALM: Rawdon Their Talent Night was a huge success as some of the members put on an excellent short play in addition to songs, recitations, gymnastics, and a terrific dog show.

QUEBEC: Valcartier sent a letter saying hello. They have been quite active and have been visible through the newspaper, on TV and they have put up many bulletins advertising their work.

ROUVILLE: Abbotsford (hints) Pour a bit of instant coffee into a pale stew. To rid odour from a musty suitcase, place a S.O.S. pad in it.

SHERBROOKE: Ascot invited members from Sawyerville and East Clifton to a meeting. Belvidere had slides at their meeting by Doris Conley who had taken a trip to San Juan, Puerto Rico, Mexico, and the Panama Canal. They also gave a donation to the Lennoxville Elementary School Lunch Fund. Brompton Road had one member, Annie Goodfellow, attend her 63rd annual meeting. Lennoxville gave a donation to Clean Water for all and some members work for the Cancer Society one day a month. Milby have made four quilts which will be sold or will be drawn.

Girls! One kiss uses up about nine calories, so kiss away! Darlene Sabetta

Through the Years

MARGARET NEWTON: First woman to do the complete degree course in Agriculture at Macdonald College

by Ralph H. Estey
Emeritus Professor Department of Plant Science

When Margaret Newton, of Plaisance, Quebec, applied for admission to the degree course in Agriculture at Macdonald College, she was not immediately accepted even though she, as a former school teacher in Lachine with a year of study at McMaster University, was academically well qualified. The reason for this reluctance on the part of the college officials is not known, but it may have been due to the fact that the three girls who had been accepted the previous year were not doing very well.

In September 1913, Lord Kitchener's niece, Mary Kitchener, together with Katie Broad and at least one other girl, registered for the degree course in Agriculture. They, and 60 boys, are in the first group photo of the class of '17, and the class historian proudly proclaimed that theirs was the first class in Agriculture to have girls. For various reasons, all of the girls and nearly half of the boys dropped out of the class before the end of their second year. The first world war had begun.

It may well have been the knowledge that the first girls to be admitted were having difficulties that made the authorities reluctant to accept Margaret Newton, which they did in 1914. However, any reluctance on the part of the professors, if it existed at all, soon vanished because Margaret proved to be a brilliant student. She led her class each year and won the Governor-General's Medal when she graduated in 1918.

It wasn't easy. Margaret encountered a number of problems and irritants that the boys in her class didn't have to face. To cite just one example, the laboratories were closed to her at night. She was told that study in the laboratories during the evening was for male students only. Margaret didn't tolerate that situation for more than a few weeks. With the support of Professor W.P. Fraser, she was permitted to work or study in the biology laboratory in the evenings and whenever it was not being used for class teaching.

In the fall of 1916 Margaret was joined by another girl, Pearl Stanford, who had entered

the Nova Scotia Agricultural College in 1913. Margaret and Pearl became close friends. Pearl soon recognized Margaret's academic superiority and was so determined that her friend would continue to be the class leader that, when exam time approached, she would sit on a cushion in the hallway near



Margaret Newton. Photo courtesy Canada Agriculture Research Station, Winnipeg.

Margaret's door and ward off those students who were inclined to take their problems to the class leader before attempting to work them out for themselves.

Margaret was an active participant in debates and became President of the Class Literary Society 1916-17 - a year in which the two girls dominated the activities of that Society with Pearl as Vice-President. It was also the first time any class had won the Robertson Shield for debating twice in its history and, with Margaret on the team, the first time a girl had represented an agricultural class on the platform. In their senior year both girls were members of the class executive with Margaret the Vice-President and Pearl the Secretary. Margaret was also an active worker for *The Macdonald College Magazine*, and a member of its Board of Management for at least one year.

Almost from the beginning of her studies at Macdonald College, Margaret took an interest in the plant pathology courses and the work that Professor W.P. Fraser was doing with rust fungi. In 1917, when Fraser went to western Canada to study the grain rust there, he left Margaret in charge of his collection of fungi. The following year she went to Manitoba as an Assistant Plant Pathologist and played an active role in rust research. At Macdonald College she inoculated various grains and grasses with rust spores sent to her by Fraser. On one occasion she inoculated wheat grown from grains that Dr. Charles Saunders had given her when he visited the college. To her great surprise all of the inoculations did not react in the same way. She repeated the experiment twice and got the same results. Unknown to her at the time, she had become the first Canadian to show that the stem rust fungus was composed of more than one strain or physiologic form.

When Dr. E.C. Stakman, who had made a similar discovery about a year earlier at the University of Minnesota, learned of what this undergraduate student at Macdonald College had accomplished, while working virtually alone, he invited Margaret to do graduate studies with him in Minnesota. But Dr. W.P. Thompson, head of the Department of Biology, University of Saskatchewan, and a leading Canadian authority on the rust fungi, had also learned of her accomplishments and wanted Margaret to go there for graduate work and be near Professor Fraser who had become Officer-in-Charge of a federal laboratory in Saskatoon. Margaret, who was about to obtain a McGill Masters degree for her research at Macdonald College, informed Dr. Thompson that she had more or less decided to go to Minnesota for her doctorate, under the auspices of the Honorary Advisory Council for Scientific and Industrial Research of Canada.

Dr. Thompson wasn't easily deterred from his objective of having Margaret work with him. He made a number of telephone calls and was able to persuade everyone concerned, including Margaret, that she should work in Saskatoon for six months and then go

to Minnesota for six months each year and thus fulfil the residence requirements for a Minnesota Ph.D. in three years. This she did, and in 1922 became the first Canadian woman to earn a Ph.D. in an agricultural science.

After a holiday in Europe, Margaret joined Thompson's staff in the Department of Biology, University of Saskatchewan, where she taught and did research on the rusts from 1922 until she resigned in 1925 to accept a position in the Dominion Rust Research Laboratory that was being constructed on the campus of the University of Manitoba, at Winnipeg.

When Dr. Margaret Newton went to Winnipeg she was widely recognized as the outstanding authority in all Canada on the physiology of the wheat rust fungi. Scientists from many countries visited her laboratory and invited her to visit and to give lectures or demonstrations on theirs. Over the years she accepted a number of these invitations. She described her methods to a number of Russian scientists, for nearly three weeks in Leningrad, and she discussed her work with rust specialists in universities or research institutions in Britain, Germany and Holland, in addition to Russia. She was Canadian delegate to a number of international conferences and presented learned papers to several of them.

It was largely because of her exemplary work with the rust fungi that Dr. Newton was elected Fellow of the Royal Society of Canada in 1942, becoming only the second woman to be so honoured.

By the time she retired in 1945, because of failing health, Dr. Newton herself, and in collaboration with others, had published more than 40 scientific papers on the rust fungi. Her outstanding contributions to Canadian and world agriculture were acknowledged by the Royal Society of Canada through the award to her of the Flavell Gold Medal in 1948. She was the first graduate of an agricultural college and the first woman to receive that prestigious medal.

In 1956 the University of Minnesota gave her its Outstanding Achievement Award and Gold Medal. In 1964 the University of Victoria honoured her by naming one of its residences the Margaret Newton Hall and, in 1969, the University of Saskatchewan awarded her an Honorary LLD.

Dr. Margaret Newton, a native of Quebec, a graduate of Macdonald College, and still considered to be Canada's most illustrious woman plant pathologist, died in Victoria, B.C., April 6, 1971.

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ON CAMPUS

Insects in the PublicEye

The last weekend of March at Stewart Hall in Pointe Claire, Quebec, was reserved for a special exhibition where the public was invited to view an exceptional display of the world of insects.

Co-sponsored by the Pointe Claire Cultural Centre, Stewart Hall, and the Lyman Museum of Macdonald College, this fascinating and educational exhibit entitled, "The Pleasures of Entomology" was designed to convey the beauty of insects as well as their importance to man and was put together by the Lyman Museum Staff under the direction of Curator, Dr. Michael Sanborne. The Lyman Museum is recognized as having one of the most outstanding and comprehensive collections in North America and anyone who visited the exhibit was treated to some of the Museum's most fantastic specimens. Displays included rare books, fossil insects, collecting techniques, scanning electron photographs, and several dramatic videos on insect behaviour. There was also a participation display where guests, while learning about the advantages of insects as food, were able to sample several foodstuffs made with

insects, including bread and fried crickets. The two-day exhibit was visited by over 1,700 people, the largest attendance at Stewart Hall in recent memory.

Friday evening was reserved for the official opening where guests were treated to a special preview. On behalf of the Mayor of Pointe Claire, Malcom Knox, Councillor Marcel Legault welcomed guests to Stewart Hall and expressed the town's pleasure at being able to cooperate in the Lyman exhibit.

Dr. Sanborne's comments centred on the history and development of the Lyman Museum. He indicated the important, life-long work and dedication both Dr. V.R. Vickery and Dr. D.K. McE Kevan, both in attendance at the reception, had contributed to establishing the Museum. Dr. Sanborne thanked the City of Pointe Claire for their support and especially Claire Cote, Director of Cultural Services and Nicole Pesold, Assistant Director of Cultural Services for their hospitality and help. Dr. Sanborne pointed out that over the next year the Museum is going to bring several important Quebec collections to the Museum.



Some of the special guests enjoying the butterfly display, l to r, Dr. George Hsuing, Curatorial Associate, Lyman Museum; Associate Dean, Marcel Couture, Macdonald College; Fraser Cliff, Chairman, Board of Trustees, Stewart Hall, Pointe Claire; Claire Cote, Director for Cultural Services and Libraries, City of Pointe Claire; Councillor Marcel Legault, City of Pointe Claire; Dr. Michael Sanborne, Curator, Lyman Museum; Nicole Pesold, Assistant Director for Cultural Services, City of Pointe Claire.

Crampton Award Recipient

The 1987 recipient of the Crampton Award for Distinguished Service in Nutrition is Dr. Kursheed N. Jeejeebhoy, a well-known research scientist from the University of Toronto's Department of Medicine. Dr. Jeejeebhoy, who came to Canada from India in 1968, was honoured at Macdonald College on April 9, 1987. Dr. Roger Buckland, Dean of the Faculty of Agriculture and School of Dietetics and Human Nutrition, presented the engraved plaque in recognition of Dr. Jeejeebhoy's outstanding contribution to the advancement of knowledge in the field of nutrition.

Kursheed Jeejeebhoy's work emphasizes nutrition of critically ill patients. He is a pioneer in parental nutrition (intravenous feeding) and has developed a system for self-administration by patients at home, thus allowing them to resume a near-normal life. Following the reception and presentation, a large audience of staff and students enjoyed a thought-provoking lecture by the Awardee on his research entitled "Muscle Function and Nutrition" in which he showed how a precise measure of muscle function serves as a sensitive indicator of nutritional status.



Dr. Kursheed Jeejeebhoy, l, receives the Crampton Award engraved plaque and congratulations from Dean Buckland

On April 1, 1987, a general agreement for technical co-operation between McGill University and the Inter-American Institute for Cooperation on Agriculture was signed by Dr. Roger B. Buckland, Vice-Principal (Macdonald College), Lyndon E. McLaren, Director and Representative in Canada for IICA, and Dr. Eugene Donefer, Director of McGill International. Witnessing this event were, l to r, Dr. Robin Stewart, Associate Dean, Research, and Dr. Chandra Madramootoo.



Photographed at the alumni breakfast at the Canadian Home Economics Association Convention in Prince Edward Island in 1986 are seated, l to r, Libby Wilson, Cari Pride Avierson, Janet Dryden, Mary Ellen Montague, Libby Colvill, Margaret Wallace, Sandra Henrico. Standing, l to r, Helen Brossard, Margaret Weeks (Conference Chairperson), Annette van Vliet, Donna Breau, Marilyn Minnis, Sylvia Saunders, Jean McHarg.

OFF CAMPUS

ALBERT BOISVERT, Dip'48, has retired from the Agriculture Canada Food Research Centre following 38 years in public service.

LEWIS E. LLOYD, BSc (Agr) '48, MSc (Agr) 50, PhD '52, received an Honorary LL.D. degree at the Dalhousie University and the Nova Scotia Agricultural College Convocation in Truro on May 6, 1986.

DR. RICHARD F. WELTON, BSc (Agr) '54, MSc (Agr) '69, has been appointed to the Ontario Ministry of Agriculture's bull test study committee. The committee has been asked to assess the feeding and management procedures in the Ontario Bull Test Program and to make recommendations. Dr. Welton is a nutritionist at Masterfeeds, London.

CHARLES WARNER, BSc (Agr) '65, has been appointed Chairman of the Ontario Farm Tax Rebate Appeal Board.

LORNE M. CROZIER, MSc (Agr) '77 has been appointed crop protection specialist in the Horticulture and Biology Branch, Truro, of the N.S. Department of Agriculture and Marketing. Mr. Crozier will be responsible for a provincial entomology extension program for all berry crops, lowbush blueberries, vegetable crops, and general home garden inquiries. For the past 10 years, Lorne Crozier has held the position of provincial apiculturist and extension entomologist.

GRANT ROGERS, BSc (Agr), '78, has accepted a position with Interprovincial Co-operative Limited as their Feed Product Manager. He was responsible for the Large Animal Research Unit with the Department of Animal Science, Macdonald College.

JOHN KELLY, BSc (Agr) '79 MSc (Agr) 85, is president of SRO Engineering, a consulting firm based in Kirkland, Que., and involved in Canadian and international water resources and transportation engineering projects.

TOM SMITH, PhD '79, was named Section Forester of the Year by the Nova Scotia section of the Canadian Institute of Forestry for his efforts over the years in establishing the Btk biological spray program to protect forest areas against spruce budworm attack.

ELAINE VININSKY, BSc (Agr) '80, has left The Manitoba Co-operator where she was a reporter to join the research staff in Ottawa of federal NDP agricultural critic Vic Althouse, MP for Saskatchewan's Humboldt-Lake Centre riding.

PAUL BERTRAND, Dip '83, of Calumet Island, was one of 31 Outstanding Young Quebecers chosen by Alliance Quebec at their annual convention held in May.

GREG SALLOUM, BSc (Agr) '83, successfully defended his Masters thesis in the Faculty of Agriculture at the University of British Columbia and received his degree in May. He is currently on staff at SAFER Ltd., carrying out research on ways to reduce the use of synthetic insecticides.

JEAN FORCIONE, Dip '85, is a chemical formulator in the pesticides area of Sanex Inc in Toronto.

Once again a number of our new graduates are off to promising careers in a variety of fields. We wish them well and hope that they and others will keep in touch in the years to come.

KELLEY ALLEN, (Agr) is going into sales for Vetrepfarm Inc., in London, Ont. ANNE CARR (Agr) is Assistant Nutritionist with Co-op Atlantic in Moncton, N.B. MYRIAM CHACKAL (FSc) is with Versa Services (contract food company) to a 150-bed hospital in Trenton, Ont. JUDY COFFIN (FSc) is Assistant Production Manager for Versabec in St. Laurent. DONNA DRURY (FSc) has a temporary position as a clinical dietitian at the Montreal Children's Hospital. DAMIEN GIRARD (Agr) is with Ralston Purina in Quebec City in the Animal Nutrition Division. CLAUDEL LEMIEUX (PhD), is a weed scientist for Agriculture Canada at the Ste. Foy Research Station. NATHALIE MICHAUD is a sales rep for mix mill with SCAR-Ste-Rosalie. JEAN NOREAU (Agr Eng), is going with Avico in Iberville. SYLVIE PILON, (FSc) is a public health nutritionist with the Eastern Ontario Health Unit in Cornwall. BRIAN RADLEY (Agr) is with BASF Canada in Montreal. Sandra Smith (Agr) is sales and marketing information co-ordinator for TUCO Canada in Orangeville, Ont. MARY VANNELLI (FSc) is with Centre D'Accueil Dante - a senior citizens residence and day centre where Mary's normal and clinical nutrition background and fluency in Italian are well utilized. Continuing their education are DOMINIQUE DUFRESNE (Agr) who is going to the McGill School of Occupational Health for her MSc. RAY MACKENZIE, (Agr Eng) is back at Macdonald to work towards his MSc as is ELIZABETH MANSFIELD (Agr) who is working towards her MSc in Animal Science. STEFAN SOBKOWIAK (MSc) has gone to the University of Guelph for an M.L.A. LAURENCE TISDALL (Agr) is returning to Macdonald to do his MSc in the Department of Plant Science in tissue cul-

ture. Buying a 200-acre cash crop farm near St. Thomas d'Aquin is CHRISTIAN OVERBEEK (Agr). Also farming is BRUCE THOMSON (Agr) from Antigonish, N.S.



Dr. Edith Rowles Child Simpson, seen here with her brother Dr. Bill Rowles in his Baie d'Urfe home a few days after she was named Member of the Order of Canada at a ceremony on April 29, 1987, at Rideau Hall. Her citation reads: "Dean Emeritus of the College of Home Economics at the University of Saskatchewan, she has, as a teacher, mentor, and friend, contributed to the well-being of families throughout her province, as well as assisted greatly the development of her profession at the provincial and national levels."

Coming Events

Sept. 1 - 4	Registration
Sept. 12	Raptor Research Centre Leadership Day & Luncheon
Sept. 26	Graduates' Reunion
Nov. 4	Quebec Farmers Association Annual Meeting
Nov. 5	Scholastic Awards Banquet
Nov. 26	Diploma Graduation

DECEASED

TREFFLE G. SEVIGNY, BSc (Agr) '42, of Montreal, Que., on May 20, 1987.

LAWRENCE W. EMMERSON, BSc (Agr) '45, of Ottawa, Ont., in 1986.

DR. J.H. HOWARD PHILLIPS, MSc (Agr) '47, PhD '60, of Vineland Station, Ont., on June 7, 1987.

DR. BALLEM MATHESON, BSc (Agr) '50, PhD '57, of Pointe Claire, Que., on June 19, 1987.

L. VINCENT REDMOND, BSc (Agr) '50, of Truro, N.S. No date given.

EDWARD J. CLARK, BSc (Agr) '52, in 1987.

JOHN R. BOOKER, BSc (Agr) '52. No further information.

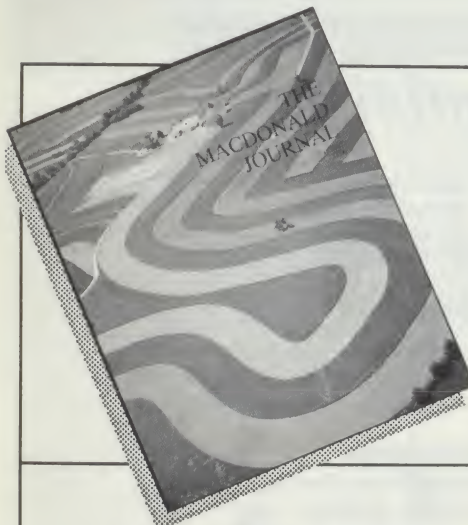
MICHAEL S.H. NURSE, BSc (Agr) '56, of Weston, Ont., on April 20, 1987.

JOHN M. HAY, BSc (Agr) '61, of Winnipeg, Man. No date given.

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